

·FORTY-EIGHTH ANNUAL REPORT  
OF THE  
DEPARTMENT OF MARINE AND FISHERIES

For the Fiscal Year

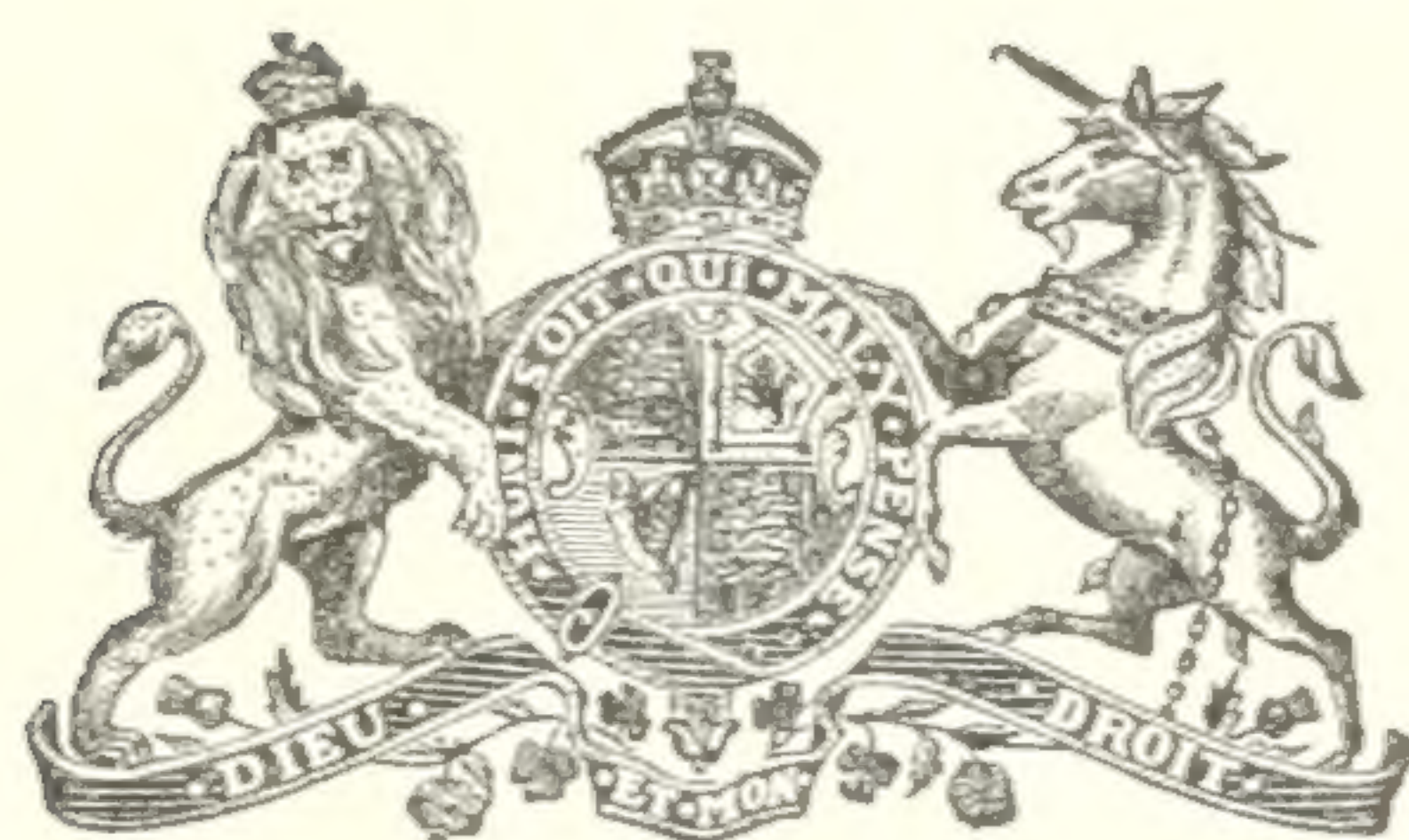
1914-15

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MARINE

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OTTAWA

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EXCELLENT MAJESTY

1915

[No. 21—1916.]







*To Field Marshal, His Royal Highness Prince Arthur William Patrick Albert, Duke of Connaught and of Strathearn, K.G., K.T., K.P., etc., etc., etc., Governor General and Commander in Chief of the Dominion of Canada.*

MAY IT PLEASE YOUR ROYAL HIGHNESS:

I have the honour to submit herewith, for the information of Your Royal Highness and the Parliament of Canada, the Forty-Eighth Annual Report of the Department of Marine and Fisheries, Marine Branch.

I have the honour to be,

Your Royal Highness's most obedient servant,

J. D. HAZEN,

*Minister of Marine and Fisheries.*

DEPARTMENT OF MARINE,

OTTAWA, October, 1915.







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# REPORT

OF THE

## DEPUTY MINISTER OF MARINE AND FISHERIES

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To the Honourable J. D. HAZEN,

Minister of Marine and Fisheries.

SIR,—I have the honour to report on the transactions and service of the different branches of the Marine Department for the fiscal year ending March 31, 1915—Forty-eighth Annual Report.

This report contains the annual reports in detail of the officials in charge of separate branches of the department for the fiscal year, and of the outside service under control of harbour commissioners, portwardens, inspectors of live stock shipments and shipping masters, for the calendar year 1914.

In reviewing the service of the department as a whole, it can be said, that in improving navigation no interruption occurred. New aids to navigation were established and the former aids, generally speaking, were successfully maintained. The necessary changes considered and contemplated in connection with the estimated expenditure, with the exception of a few noteworthy instances, were carried out. Some of these changes and a large part of the new construction, as will be seen by the detailed reports, were completed, while progress was made in unfinished work. Two important instances, in which no progress was made, are the suspension of work on the icebreaking steamer for the St. Lawrence river and a large dredge for the ship channel deepening. The contractors for the icebreaker informed the department that their shipyard at Montreal had been requisitioned by the British Government and they applied for an extension of time in which to complete the steamer.

These two important interruptions account largely for the large unexpended balances of the appropriation by Parliament for carrying on the construction work of this department.

Some difficulties were encountered in districts in taking up large buoys owing to unexpected rough and cold weather, especially in the Quebec district. The efforts were finally successful and the buoys were secured.

Progress was made in several of the most important harbours of the country in deepening channels, anchorages and construction of docks. The new Marine depot at St. John, N.B., and the extensive wharf will provide facilities for handling large buoys, lighthouse supplies and berthing accommodation for the departmental steamers; the depot is not yet completed.



On the 29th of May, 1914, the most serious marine disaster in the history of the country occurred in the St. Lawrence river, four miles below Father point, by the sinking of the Canadian Pacific ocean liner *Empress of Ireland*, caused by the collision with the Norwegian coal steamer *Storstadt*; the loss of life was serious, causing the deepest regret. An investigation of the most thorough kind was made into the question of the responsibility for the collision. The proceedings and judgment of the Court of Inquiry is contained in a special report published by the department. It is shown that the collision was in no way due to any fault in aids to navigation, lack of sea room, nor depth of water in the river. On the other hand it was shown that the river affords ample room for navigation of large ships and the aids are on an extensive scale.

The Parliamentary appropriation for the fiscal year was \$7,405,684.25, the total expenditure was \$6,202,908.16, leaving an unexpended balance of \$1,202,776.09. The net revenue of the department was \$795,550.27, of this amount the sum of \$493,000 was received as the purchase price of the icebreaking steamer *Earl Grey* from the Russian Government. The statement of expenditure in connection with the different services and the statement of revenue form appendix No. 5 of this report.

Several harbours were proclaimed during the year and the harbourmasters appointed.

The subdivisions and branches of service under which the whole work of the Marine Department was carried out, are as follows:—

The construction of lighthouses and fog-alarms by the Engineer's Branch.

The maintenance of lights, gas buoys and other buoys by the Commissioner of Lights' Branch.

The Lighthouse Board which decides the necessity for aids to navigation.

The ship channel, St. Lawrence river and Sorel shipyard.

Meteorological and magnetic service.

Investigations into wrecks.

Wrecks and casualties.

Board of steamboat inspection.

Marine hospitals.

Submarine signals.

Shipping under the Merchants' Shipping Act.

Legislation and administration of laws relating to the Department of Marine.

Humane service in connection with seamen and life-saving stations.

Winter communication.

Removal of obstructions to navigation.

Pilotage, masters and mates, and seamen.

Government of ports and proclaiming of harbours in the Dominion.

Control of harbours and government wharves.

Dominion steamers, Marine Department.

Port wardens.

Wreck receivers.

Harbour commissioners.



## SESSIONAL PAPER No. 21

## LIGHHOUSE CONSTRUCTION, IMPROVEMENTS AND REPAIRS.

The work of construction of lighthouses, lightkeepers' dwellings, light-towers, fog-alarm buildings, boat-houses, protection work, and repairs to lighthouses in general, are specified in the Chief Engineer's report. Many improvements were made by changing the lights to higher power.

New lights and aids to navigation established, changes and improvements and repairs at existing stations and lighthouse and buoy depots, are detailed in the report of the Chief Engineer, appendix No. 1 to this report. Extensive improvements were made at a number of stations, and minor improvements and repairs at others.

In Nova Scotia three lighthouses with dwellings, sheds and other outbuildings, were begun; five fog-alarm buildings, three with dwellings, and one concrete tower, were erected; three pole lights and extensive repairs, changes and improvements were made at 34 stations. Minor repairs were made at other stations.

In New Brunswick, five lighthouses were begun; two fog-alarms; three combined lights and dwellings, six pole lights and one steel skeleton tower, were erected. One lightship was established; one concrete tower erected; the work at the St. John buoy and beacon depot was continued and extensive changes and improvements made at 20 different stations; five lighthouse sites were selected and minor repairs were carried out at a number of stations.

In Prince Edward Island, changes and improvements were made at eight different stations and minor repairs carried out at a number of others.

In Quebec, two lighthouses were begun. Four pole lights, one steel skeleton tower and one dwelling were erected. Extensive changes and improvements were made at twenty-one different stations, and minor repairs at a number of others.

In the Montreal district, three new lighthouses were begun. Eight beacons were built. One steel skeleton tower, was erected, and extensive changes and improvements made at six stations.

In Ontario and the Northwest territories, two steel skeleton towers were erected, and 5 pole lights, and one concrete tower. One Aga gas beacon was installed, five fog-alarms established and extensive repairs and improvements made at three stations.

In British Columbia, two skeleton towers, four pole lights, two concrete towers and keepers' dwellings were erected and one fog-alarm building was begun. A large number of beacons consisting of day beacons, acetylene beacons, two Aga gas beacons, and seven concrete beacons were established and extensive changes and improvements made at three stations.

In Hudson bay and strait, ten Aga gas beacons were erected and the lights installed.

Notices to Mariners were issued as usual apprising mariners of the establishment of new lights and buoys and changes in Canadian waters, and as far as possible, in waters contiguous to our waters. Many of these notices included changes in navigation in British waters owing to the war in Europe. All Notices to Mariners were sent to custom houses to deliver to masters departing from the ports.



REMOVAL OF OBSTRUCTIONS TO NAVIGATION.

As usual the work of removing obstruction, such as hulks, logs and other obstructions was carried on in different localities. Part of the work was performed under contract and part by use of Dominion steamers as will be seen by the following extract from the Chief Engineer's report:—

Bear River, N.S., removal of stumps cost.. . . . .	\$ 10 00
Margaree Harbour, N.S., removal of wreck of steamer <i>Elector</i> by contract, cost.. . . . .	150 00
Guysboro Harbour, N.S., hulk removed, cost.. . . . .	32 85
Yarmouth Harbour, N.S., hulk removed, cost.. . . . .	10 00
North Head, Grand Manan, N.B., sunken moorings removed under contract, cost.. . . . .	75 00
St. John river, "dead heads" removed, cost.. . . . .	44 75
Charlottetown Harbour, P.E.I., removal of hulk of steamer <i>Elfin</i> under contract, cost.. . . . .	500 00
Lachine, P.Q., removal of wrecks of steamer <i>Rhoda</i> by day labour, cost.. . . . .	1,273 81
Lake St. Clair, removal of the wreck of the <i>Chas. Crawford</i> , contract, cost.. . . . .	1,450 00
Lake Erie removal near Amherstburg of the wreck of the <i>City of London</i> by contract, cost.. . . . .	4,900 00
Summerside, P.E.I. Harbour, removal of submerged logs by Dominion steamer <i>Brant</i> .	
Port Dalhousie, Ont., removal of the <i>Delver</i> by the owners.	
Incidental expenses.. . . . .	82 53
Total expenditure.. . . . .	<u>\$8,528 94</u>

LIGHTHOUSE SUPPLY SERVICE.

Lighthouse supplies consisting of illuminating oil, lamps, paints, etc., were delivered at lightstations by Dominion steamers. The superintendents of lights in each agency prepared lists of quantities and supervised the delivery of the articles, at the same time carried out inspection of the stations. The superintendents reported to the agents on the east and west coasts and the Superintendent of Lights for Ontario to the department. The work of the different supply boats is described under the heading of Dominion Steamers.

REPORT OF THE COMMISSIONER OF LIGHTS.

This report contains statements of the aids to navigation maintained throughout the year and the number of the new gas buoys that were established during that period. A convenient table of the different lighthouses, buoys, beacons and lightkeepers is included in the report; from it may be ascertained the number of lighthouses, keepers and aids kept up in the separate provinces and the total for the year in the Dominion.

A comparison with the year 1913-14 will show an increase in different orders of lights.

In 1913-14 the total number of lights maintained of all kinds was 1,461. The order of lights ranging, 1st order to 7th order indicates the candle power. The lights are also divided into dioptric or lens lights and the catoptric or reflector lights. Some of the lights are also electric lights with incandescent and arc lamps.

The distance at which the lights can be seen at sea from the stations is stated in the List of Lights published separately from this report.



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The table above referred to contains also the number of fog-alarms that are in operation, of the diaphone and other types.

The diaphone fog-alarms increased from 98 in 1913-14 to 105. In the buoy service all types of buoys increased in 1914-15.

The coast buoys, consisting of gas buoys, combined sounding and lighted buoys, show an increase from 319 to 336. Lightkeepers increased from 1,040 to 1,066. The whistling buoys from 30 to 31 and the bell buoys from 82 to 86. Total of gas, whistling and bell buoys in operation this year is 453.

The report in full forms appendix No. 2 of this report.

## ST. LAWRENCE RIVER SHIP CHANNEL.

Repentigny channel from Isle Ste. Thérèse to Lavaltrie was completed to a depth of 15 feet at E.L.W., buoyed out and opened to navigation. There is now a channel for light draught vessels of 55 miles, except for half a mile below Pt. aux Trembles, from Montreal to lake St. Peter, outside of the ship channel.

The 30-foot project between Montreal and Quebec is completed, with the exception of 1.75 miles at St. Augustin bar, where operations will be carried on next season. Vessels of deep draught pass now during rising or high tide.

Widening of Cap à la Roche channel and curve is completed.

Widening of Varennes curve near Montreal is completed to 650 feet.

Widening of Cap Charles channel completed.

Grondines channel (Horseback bar) has been widened to 450 feet.

The channel approach to Montréal floating dock is completed to a minimum width of 900 feet and depth of 30 feet E.L.W.

From Quebec to the Traverse below Quebec, a distance of 60 miles, 6.65 miles required dredging. Two miles have yet to be dredged in the north channel, the south channel having been completed in 1912 and opened to navigation.

Thirty-five-foot new project.

The channel termed the 35-foot channel is the same channel as that now known as the 30-foot channel, which will be deepened to 35 feet under the new project.

Under the survey made for the 35-foot project it was found that 90 miles of dredging would have to be done along the course of the channel from Montreal to the Traverse below Quebec. This of course means dredging at points as shown on the profile map. Some portions of the channel in their natural state do not require dredging at all as the water is very deep.

Progress of dredging operations in the 35-foot project, E.L.W., has been as follows:—

Division No. 1.—Montreal to Sorel, distance, 45 miles; length dredged in 1914, 2.35 miles; length yet to be dredged, 24.51 miles.

Division No. 2.—Sorel to Batiscan, distance, 36 miles; length dredged in 1914, 0.01 mile; length yet to be dredged, 18.50 miles.

Division No. 3.—Lake St. Peter, length of division, 20 miles; length dredged in 1914, 2.67 miles; length yet to be dredged, 3.09 miles.







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A private telephone line has been established between the Signal Service office, Montreal, and the Canal office at Lachine, giving movements of vessels, and by arrangement with the Department of Railways and Canals their officials at Lachine, Soulanges, Cornwall, Galops, Welland and Sault Ste. Marie report several times daily the movements of vessels to the Signal Service at Montreal.

In August, the Batiscan signal station was closed and a new one opened at Pointe Citrouille, and an additional telephone line installed between the latter place and Three Rivers connecting with the St. Jean signal station.

The signal station at Verchères is to be closed and replaced by two new ones, one at Cap St. Michel and the other at Bellmouth curve. It has also been decided to establish signal stations in the lighthouses at point Tupper, N.S., and Scatarie island, N.S., and a reporting station in the Main-à-Dieu, N.S., lighthouse.

A report of the Signal Service at the Citadel, Halifax, prepared by D. H. Williams, Lieut. R.C.E., is contained in appendix No. 11, and shows the number of vessels of different kinds that entered the harbour and vessels that passed.

## ICEBREAKING.

Icebreaking in the St. Lawrence river is reported upon at length in the report of the Superintendent of the St. Lawrence ship channel. Captain McLean of the *Lady Grey* states in his report on icebreaking service that the weather on the 18th of November, 1914, turned cold and continued so for a week. The *Lady Grey* and *Bellechasse* were sent to Three Rivers to be held in readiness to assist vessels navigating the St. Lawrence river. The *Manchester Spinner* passed outward on the 4th of December and was the last vessel for sea. The weather became moderate and the winter of 1914-15 was exceptionally mild, the thermometer registering zero or below on two or three occasions only.

Although this was the case the steamers *Montcalm* and *Lady Grey* were kept engaged in breaking up ice-jams at various points in the river nearly the whole winter season. Two of the most difficult ice-jams to remove was one at the bridge above Quebec, and the other in the lower part of Quebec harbour.

In the early part of the winter the *Montcalm* had been sent down the river from Quebec to the gulf, therefore, the service of the two steamers in breaking accumulations at the same time, early in the season, was impossible, and icebridges or jams formed at different points, causing laborious operations throughout the winter. It is stated that their efforts, although successful, were the most difficult since the icebreaking service was established in 1909.

Icebreaking in the harbour of Port Arthur and in the north channel of lake Huron are referred to in the Chief Engineer's report. The work, under contract, during the winter of 1914-15, was continued.

Winter communication between Prince Edward Island and the mainland, kept up by the *Minto* and *Stanley* and the small iceboats between cape Tormentine and cape Traverse, is referred to under the head of Dominion Steamers.



## SOREL SHIPYARD.

At the beginning of the fiscal year all the vessels that had been undergoing repairs and alterations during the winter were about ready to begin the coming season's operations.

The first vessels of the fleet to leave Sorel cleared on the 4th of May and began work in the ship channel. Repairs to the ship channel fleet are divided into summer and winter repairs in the performance of the work of the year at the yard; summer work of this kind being generally due to accidents while the vessels and dredges are operating.

Extensive repairs and alterations were made to some of the different kinds of vessels, including the usual overhauling; in other cases, minor repairs and overhauling only were necessary.

Sixteen dredges were put and kept in thorough working condition during the year, but one received winter repairs at Quebec.

Seventeen tugs of the ship channel fleet were overhauled, repaired and painted, during the winter months; several of them were again taken to the shipyard during the summer for minor repairs, and in the cases requiring replacing of broken propellers and repairing damage to rudders, were hauled out.

Five steam barges of the same fleet received ordinary repairs during winter, three of them were repaired slightly during the summer.

Three sounding scows were hauled out of the water and had their hulls repaired; twenty-eight dumping scows were kept in working order by making frequent repairs to the hydraulic cylinders and hopper doors and eight of these scows were drawn from the water to make repairs to their hulls; the floating shop was equipped with beds for the crew; the stone lifter, rock cutter, derrick, scows, winch scow and pile driver were also kept in repair by work done at the shipyard.

The *Frontenac* and *Lady Grey*, also of the ship channel fleet, were overhauled and painted, the former received slight summer repairs and renewals of part of the vessel during the winter; the latter being employed in winter work as well as summer received necessary repairs, was painted and machinery and hull put in good working condition.

Two tugs belonging to the Public Works Department were hauled out of the water and repaired.

Repairs of different kinds were made to the four or five tugs used in the Construction of Lights service of this department.

Lightships 1, 2 and 3 were hauled up from the water, painted below the water line and elsewhere. New deck plates replaced the old ones, and other substantial work was done in renewing the lightships.

The new construction work consisted of building tugs and scows for the ship-channel operations and other branches of departmental service. Vessels laid down the year previous were completed or the work advanced. The vessels under construction are known by numbers 45 and 46, twin-screw combined tugs and fire boats; 54, a wooden patrol boat; 57, a twin-screw steel-testing boat for the ship channel; 59, a tug to be employed below Quebec; 60, a buoy service boat for the Ottawa river; 61 and 62,



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hopper barges, and 63, a coal barge; 47 to 50, steel dumping scows, and 64 to 67, also steel dumping scows.

Several yard buildings were altered and repaired and a small number moved to more convenient locations.

Appendix No. 4 is the report in detail of the Sorel Shipyard work and a statement of expenditure showing the total amount expended at the shipyard to have been \$1,579,115.48.

## DOMINION STEAMERS.

## NOVA SCOTIA DISTRICT.

*Lady Laurier.*

The *Lady Laurier* is a twin-screw steel vessel, 214.9 feet long, 34.2 feet wide, 17.2 feet deep; 439 net, 1,051 gross tonnage and 186 nominal horse-power. She was built in Paisley, Scotland, in 1902. This vessel is employed in the lighthouse and buoy service of this department, under the direction of the Nova Scotia agency.

This ship was in the lighthouse and buoy service at the beginning of the fiscal year and continued work until the 26th of July, when she was put in dry dock. Repairs to plating, decks, tanks and railing were made. The bottom was cleaned and painted and a new wireless equipment installed, besides other minor repairs.

She was then transferred to the naval service for a short time, and afterwards resumed work in the lighthouse and buoy service, which was continued until the close of the fiscal year, except a few days in January and March, 1915, when she underwent minor repairs and boiler cleaning.

*Stanley.*

The *Stanley* is a single-screw steel vessel, built in Govan, G.B., in 1888, specially for winter navigation in the strait of Northumberland, and is 207.8 feet long, 32.0 feet wide, 17.9 feet deep; 395 net, 914 gross tonnage, and 300 nominal horse-power.

The *Stanley* made a trip to the Magdalen islands, cape Race, Newfoundland, and Cabot strait during the month of April and continued in the lighthouse and buoy service until the 1st of August when she was transferred for a short time to the Naval Department.

She was laid up for annual overhaul and repairs on the 1st of September. The boilers were scaled and cleaned and caulked, Weir's pump repaired, condenser retubed, pumps overhauled and repaired, engines repaired, a Sellar injector fitted, electric lights repaired and all piping put in good repair, and she was transferred to the Prince Edward Island agency 11th December for winter navigation between the island and the mainland.

*Aranmore.*

The *Aranmore* is an iron screw steamer built in Dundee, Scotland, in 1890. She is 241.5 feet long, 34.8 feet wide, 15.7 feet deep, 500 net, 1,170 gross tonnage, and has 260 horse-power.



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This steamer was bought by the department from James Holliday, Esq., of the city of Quebec, on the 3rd of July, 1914, and in August went to Port Burwell with coal for the *Minto* and to take gas tanks and pole lights for Hudson strait.

She returned in October and distributed coal to fog-alarm stations in the bay of Fundy and was put on the slip for repairs, resumed supply work on the western shore, was again put on slip for repairs and in January began work and continued operations until the end of the fiscal year.

## NEW BRUNSWICK DISTRICT.

*Aberdeen.*

The *Aberdeen* is a single-screw steel vessel, built in Paisley, Scotland, in 1894, and is 180 feet long, 31.1 feet wide, 16.9 feet deep, 274 net, 674 gross tonnage and 200 nominal horse-power.

The *Aberdeen* is employed in the lighthouse and buoy service under the control of New Brunswick agency and was at St. John at the beginning of the fiscal year, and continued operations until August 27, when she was hauled on Dartmouth slip. She left the slip on the 29th and resumed work.

Boiler repairs were made at St. John from the 1st to the 4th December, when she resumed work.

On the 30th of December she was ordered to proceed to a wreck at Tucket island, but owing to rough sea could render no assistance.

On the 27th of February she was moved to berth No. 6, St. John, and remained there until the 12th of March, undergoing repairs to winch and general overhauling, and resumed operations. Was at St. John at close of year.

*Lansdowne.*

The *Lansdowne* is a wooden steamer built at Maccan, N.S., in 1884, and is 188.6 feet long, 32.1 wide, 15.8 feet deep; 463 net, 680 gross tonnage and 80 nominal horse-power.

This steamer is employed in the lighthouse and buoy service under the direction of the New Brunswick agency. At the beginning of the fiscal year she was at Westport, N.S., and continued operations until the 6th of May, when a buoy hawser got caught in propeller and the steamer had to be towed to St. John and divers employed to clear hawser from propeller.

While at anchor off cape Sable the ship struck bottom several times and sprang a leak. She was placed on the Marine railway on the 19th of September for repairs. She was taken off the Marine railway on the 29th of September and began regular service, but on the 19th of October she had to be placed on Hilyard's blocks for overhaul and repairs, came off blocks on the 14th of November and continued operations until the close of the fiscal year.



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## PRINCE EDWARD ISLAND DISTRICT.

*Earl Grey.*

The *Earl Grey*, an icebreaking freight and passenger steamer, built specially to keep up communication between Prince Edward Island and the mainland during the winter season, was sold to the Russian Government in September, 1914.

Immediately after the outbreak of the war in Europe negotiations were opened by the Russian Government for the purchase of this steamer to be used in winter navigation at Archangel; the steamer was sold for the sum of \$493,000.

*Minto.*

The *Minto*, is a single-screw steel vessel, built in Dundee, G.B., in 1899, specially for winter navigation in Northumberland strait, between Prince Edward Island and the mainland, is 225 feet long, 32.7 feet wide, 18 feet deep, 446 net, 1,090 gross tonnage, and her engines develop 216 nominal and 2,900 indicated horse-power.

The *Minto* was on the Pictou-Georgetown route at the beginning of the fiscal year, was on the Charlottetown-Pictou route from the 3rd to the 19th April, 1914. She broke ice in Summerside harbour on the 20th, left for Judique, C.B., on the 22nd to assist SS. *Glencliffe*, finished towing her clear of ice on the 26th, and returned to Charlottetown on the 28th, left for Pictou on the 30th, returned on May 4th, entered the service of the Steam Navigation Company, in which she remained until the 25th May, and sailed for Pictou on the 29th to go on the "slip." She left Pictou for Halifax on June 2nd to prepare for Hudson bay trip, on which she sailed on July 3rd.

The *Minto* arrived at Halifax from the Hudson bay trip on the 5th of October, went on the slip, had repairs made to boilers, engines, other parts of machinery and tackle, had hull repaired and painted and the vessel was put in fit condition for winter navigation. She left the slip on the 24th of October, arrived at Charlottetown on the 29th. She remained at the Marine wharf, Charlottetown, preparing for winter service until the 22nd December, when she began the winter service between Charlottetown and Pictou. She began on the 24th of December on the Georgetown-Pictou route, where she remained until the end of the fiscal year.

The *Minto* made 60½ round trips, carried 14,526,314 pounds of freight, 476,440 pounds expressage, 3,186 passengers, provided 2,963 meals and 1,118 berths to passengers.

She earned \$10,219 03 from freight.

"	952 60	"	expressage.
"	4,215 00	"	passengers.
"	296 30	"	meals.
"	1,118 00	"	berths.
"	1,225 00	"	Steamship Navigation Co.
"	23 40	"	meals, etc.

Total, \$18,049 33.



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*Stanley.*

The *Stanley* was transferred from the Nova Scotia agency to that of Prince Edward Island on the 1st of December, 1914, to take the place of the *Earl Grey*, sold to the Russian Government.

From the 2nd to the 10th December, she was engaged in lifting buoys in Charlottetown harbour, was under repairs from the 11th to the 16th, went on the Summerside and Tormentine route on the 17th where she plied until the 24th December, when owing to ice conditions, she sailed for Georgetown and remained on the Georgetown-Pictou route to the close of the fiscal year.

The *Stanley* made 36 round trips, carried 7,281,819 pounds freight, 267,559 pounds expressage, 1,746 passengers, served 1,423 meals and 694 berths were occupied by passengers during the season.

During the winter service, she earned \$4,984 51 from freight.

"	"	535 11	"	expressage.
"	"	2,224 25	"	passengers.
"	"	142 30	"	meals.
"	"	694 00	"	berths.

The meals are furnished by the steward, who pays the ship 10 cents each meal for the privilege.

*Brant.*

The *Brant* is a wooden vessel, built in Charlottetown, P.E.I., in 1898, is 100·4 feet long, 19·1 feet wide, 9·5 feet deep, 58 net, 142 gross tonnage, and has 33 horse-power.

The *Brant* was at the Marine wharf, Charlottetown, undergoing repairs until the 4th of May, 1914, when she began the buoy service, which she carried on until the 16th December, when she was transferred to the Naval Service and sailed for Halifax. She again began the buoy service in Nova Scotia waters, until the 11th of January, when she was returned to the Naval Service until the 27th January to the 25th of February, then entered on harbour buoy work and was returned again to the Naval Service, in which she continued until the close of the fiscal year.

Her earnings for special service were: \$10 for towing schooner *J. E. Garland*; \$225 for towing dredge *No. 9*; \$150 for towing dredge *No. 9*; total, \$385.

WINTER MAIL SERVICE BETWEEN CAPE TORMENTINE, N.B., AND CAPE TRAVERSE, PRINCE EDWARD ISLAND.

The mail boats and boathouses were put in good state of repair before the opening of the winter mail service, which began on January 16, 1915, with six boats leaving both sides, and continued with few interruptions until the 27th of February, and from the 13th to the 31st of March, making 50 trips from each side, earning \$154.80.

## QUEBEC DISTRICT.

*Champlain.*

The *Champlain* is a screw steel vessel, built in Paisley, Scotland, in 1904, is 120 feet long, 30·3 feet wide and 17·6 feet deep, is of 225 net, 522 gross tonnage, and 87 nominal horse-power.



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She is under the command of Captain René Pelletier, carries a crew of from 26 to 28 men and is employed the year round in the ferry service between Murray Bay, Cap-à-l'Aigle, St. Irénée, on the north shore of the St. Lawrence river and Rivière Ouelle wharf, on the south shore, which is connected at Rivière Ouelle junction with the main line of the Intercolonial railway.

Owing to severe storms and heavy ice, she failed to make crossing 33 times from the 1st of January to the 9th of March.

She carried 8,486 passengers, 7,266 bags of mail weighing 121,065 pounds, and 1,815 tons of merchandise, furnished 1,576 meals to passengers and earned \$7,196.65.

*Druid.*

The *Druid* is a single-screw steel vessel, built in Paisley, Scotland, in 1902, is 160 feet long, 30.1 feet wide, 12.5 feet deep, 149 net, 503 gross tonnage, and 59 horse-power.

She is employed in the lighthouse and buoy service under the control of the Quebec agency, is under the command of Captain Michel Gagnon, carries a crew of 31 men and has sailed from the 1st of April to the 30th of November, a distance of 13,316 miles.

*Eureka.*

The *Eureka* is a single-screw, steel vessel built in Glasgow, Scotland, in 1893, is 98.7 feet long, 22.0 feet wide, 11.0 feet deep, 170 gross, 19 net tonnage, and 60 horse-power.

The *Eureka* employed as a pilot tender, is under the command of Captain J. B. Bélanger, and carries a crew of 19 men. She leaves for the pilotage station at Father point, at the opening of navigation, takes on and off pilots, guiding ocean vessels up or down the river until late in the fall when she returns to Quebec where she is wintered and is fitted out for next season's operations.

*Montcalm.*

The *Montcalm* is a powerful twin-screw steel vessel, specially designed for ice-breaking in the St. Lawrence river and built at Yokers, G.B., in 1904.

She is 245 feet long, 40.6 feet wide, 15.7 feet deep, of 526 net, 1,432 gross tonnage, 406 nominal and 4,250 indicated horse-power. The vessel is in charge of Captain Edgar Pelletier and carries a crew of 67 men.

The *Montcalm* was employed in the lighthouse services during the summer and left Quebec for the Magdalen islands on the 20th of June, with lighthouse supplies, and returned on the 6th of July. The *Montcalm* sailed to the North shore and Newfoundland on the 28th of July with supplies; returned on the 17th of August, sailed for Bay Chaleur and Gaspé on the 10th of September and returned on the 4th of October.

The *Montcalm* sailed on her last supply trip for the season on the 20th October, sailing for the strait of Belle Isle, the north shore of Newfoundland, and returned



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to Quebec on the 11th of November, was then kept in readiness to render aid to in-coming and out-going vessels and to help the *Druid* in raising buoys in the river St. Lawrence.

She sailed up the Saguenay on the 11th December to render aid to the steamer *Charterhouse*, began a trip to Seven islands on the 23rd December, returned on the 30th and sailed for Gulf ports on the 28th February, 1915, returning on the 6th of March.

#### *Montmagny.*

The *Montmagny* is a single-screw steamer, built of steel, in Sorel shipyard, in 1909, and is 212.6 feet long, 34.8 feet wide, 19.5 feet deep, 723 net, 1,269 gross tonnage, and 148 horse-power.

She was under the command of Captain F. X. Pouliot, carries a crew of 48 men and is employed in construction work, transporting workmen and materials to lighthouse stations in the river and gulf of St. Lawrence, strait of Belle isle and bay Chaleur.

While on a cruise to Gaspé coast, Newfoundland, and Anticosti, she was, on the 18th of September, run into and sunk near Beaujeu bank by the collier *Lingan* and fourteen lives lost.

#### *Rouville.*

The *Rouville*, a wooden steamer built at Sorel, P.Q., shipyard, in 1906, is 125 feet long, 26 feet wide, 14.2 feet deep; her net tonnage is 144 tons and her gross tonnage is 301 tons, and horse-power 54 nominal.

She was employed in the construction work, and replaced the *Champiain* on the Rivière-Ouelle-Murray Bay ferry service for a short time and the *Eureka* on the pilotage service from the 22nd of April until the 12th of May; made several trips to the strait of Belle isle and the Saguenay river on construction work, and left Quebec for Halifax on the 11th December, operated under control of Halifax agency, making trip to Sable island, attending to buoys and supplies until February, when she was laid up for repairs, was handed over to the Naval service on the 12th of March, returned to the same agency on the 17th, under which she worked until the close of the fiscal year.

#### MONTREAL DISTRICT.

#### *Dollard.*

The *Dollard* is a twin-screw steel vessel built in Kingston, Ontario, by the Collingwood Shipping Company, Ltd., in 1912, and is 170 feet long, 31.6 feet wide, 15.6 feet deep. This vessel was employed during the season in placing buoys and patrolling the ship channel from Platon to Montreal.

#### *Maggie May.*

The *Maggie May* is a tug, chartered by the department during the season of navigation, and was employed in the lighthouse, buoy and construction works on the Ottawa river, lake St. Louis, Rideau river and lakes.



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*Shamrock.*

The *Shamrock* is a single-screw, wooden vessel, built at Quebec in 1894, is 117.3 feet long, 25 feet wide, 9.7 feet deep, 237 gross, 161 net tonnage, and 61 horse-power.

This boat is employed in the lighthouse and buoy service and was used during the first part of the season in placing buoys in the "Ship Channel" and afterwards when painting and supplying different lighthouses and lifting buoys in the fall.

## BRITISH COLUMBIA DISTRICT.

*Estevan.*

The *Estevan* is a twin-screw, steel vessel built in Collingwood, Ontario, in 1912, and is 212 feet long, 38 feet wide, 15.3 feet deep, 1,161.42 gross, 606.61 net tonnage, has 174 horse-power and a speed of 12 knots an hour.

This vessel was overhauled at Yarrows, Ltd., Esquimalt, before the beginning of the fiscal year and began placing and attending to aids to navigation in the gulf of Georgia on the 18th of April, landing lighthouse supplies and overhauling aids to navigation from cape Mudge to the Alaska boundary.

The vessel was transferred to the Naval service and worked under the direction of the senior naval officer at Esquimalt from August the 12th to the 19th of September. She went to Victoria on the 24th to have repairs made to machinery and hull cleaned and painted, had slight repairs to machinery made at Esquimalt and on the 12th November again began the buoy service, which continued to the end of the year.

*Quadra.*

The *Quadra* is a screw, steel vessel built in Paisley, Scotland, in 1891. She is 174.5 feet long, 31.1 feet wide, 13.6 feet deep, has 265 net, 573 gross tonnage, and 120 nominal horse-power.

She is in the lighthouse and buoy service and was in this service until the 30th of July, when the ship was transferred to the Naval service until the 12th of August, when she was cleaned and repaired, and on the 19th resumed ordinary duties until the 8th of October, when she was turned over to Yarrows Ltd., at Esquimalt, for annual overhaul and repairs and continued regular work from the 16th of November until the close of the fiscal year..

*Leebro.*

The *Leebro* is a wooden, steam vessel built at Victoria, B.C., in 1908, and is 123.5 feet long, 28.8 feet wide, 11.1 feet deep, 198 net, 323 gross tonnage, and 23 horse-power.

This is a chartered steamer and was employed during the whole fiscal year in the lighthouse and construction service.

## ONTARIO DISTRICT.

*Simcoe.*

The *Simcoe* is a steel twin-screw vessel of 217 horse-power, built by Swan, Hunter & Wingham, Richardson, Ltd., Newcastle-on-Tyne, G.B., in 1909, and is 180 feet long, 35.2 feet wide, 15.5 feet deep, 913 gross and 438 net tonnage.



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She is employed in the lighthouse and buoy service on the Great Lakes and Georgian bay.

From the opening of navigation to the 22nd of September she was employed in the lighthouse and buoy service and then went into the Collingwood dry dock for repairs, where she remained until the 3rd of October, when she resumed work, which she continued until the close of navigation.

#### *Lambton.*

The *Lambton* is a single-screw steel vessel of 89 horse-power, built in Sorel ship-yard, Quebec, in 1909. She is 108 feet long, 25.1 feet wide, 12.7 feet deep, 324 gross, and 182 net tonnage.

She is employed in lighthouse and buoy construction and supply services on the Great Lakes and Georgian bay and wintered at Parry Sound, where she was painted above water line and on the 15th of May sailed for Kingston, where she was placed on dry dock on the 24th. She was painted below water line, had propeller changed and necessary repairs made. The vessel resumed work on the 29th of May and continued until the close of navigation; wintered at Parry Sound in 1914-15, where she had repairs made to boilers and machinery preparatory to spring operations.

#### *Scout.*

The *Scout* is a twin-screw wooden vessel, built at Cardinal, Ont., in 1900, and is 103.6 feet long, 25.6 feet wide, 9.2 feet deep, 176 gross, 70 net tonnage, and has 12 horse-power.

She was repaired and fitted out in April, and went into commission on the 20th, continued work in the lighthouse and buoy service from Valleyfield to Presqu'île under the direction of the officer in charge of Prescott Lighthouse Depot until the 15th of December, 1914, when she was laid up for winter; and repairs were made to hull and machinery during the month of March.

#### *Reserve.*

The *Reserve* is a single-screw, wooden vessel, 80.4 feet long, 17.5 feet wide, 5.8 feet deep, 114 gross, 37 net tonnage and 5 horse-power. She was built in Buffalo, N.Y., in 1884, and is used principally as a tug to tow and move scow *Parry Sound* in connection with the maintenance of aids to navigation in the Prescott division from Valleyfield to Presqu'île.

Being overhauled and repaired she went into commission on the 20th of April, 1914, continued in the lighthouse and buoy service until the 16th of December, when she was laid up for winter; and was repaired in March, in preparation for next season's operations.

### METEOROLOGICAL SERVICE.

Weather reports were received at the Central Station, Toronto, from 532 stations, including telegraph, climatological and storm signal stations; 363 of the observers receive remuneration, the remainder perform the service without remuneration. Of



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the number in receipt of salaries 35 are employed at the central office. Persons in receipt of pay increased from 332 to 363 during the fiscal year. A few wireless stations ceased to report owing to the war going on in Europe.

Storm warnings were issued to 112 display stations in Canada, and of 2,037 warnings 88 per cent were verified. This service was extended to Newfoundland and warnings of expected storms were issued on 34 occasions. Storm warnings and forecasts were also issued to the wireless stations on the Great Lakes.

The new observatories at St. John, N.B., and Victoria, B.C., have been completed; these observatories are described in appendices to the Director's report and are well adapted and equipped for every branch of the service.

The full report of the Director of the Meteorological Service forms appendix No. 6 of this report.

## SICK AND DISTRESSED MARINERS.

Under the provisions of the Canada Shipping Act, chapter 113, part 5, s. 338, R.S., dues of 1½ cents per ton, registered tonnage, are levied on every vessel entering any port of the province of Quebec, Nova Scotia, New Brunswick, Prince Edward Island, and British Columbia. The money thus collected forms the sick mariners' fund. Vessels of the burden of 100 tons and less pay duty once in each calendar year, and vessels of more than 100 tons, registered tonnage, three times in each year.

The officers and seamen of all fishing vessels not registered in Canada do not pay sick mariners' dues nor participate in the benefits accruing therefrom, but such vessels registered in Canada may pay dues and participate in the benefits; and if of more than 100 tons, only for the voyage at the beginning of which payment has been made; such vessels shall enjoy the same rights and benefits as are enjoyed by vessels which pay dues and are not engaged in fishing.

The Act, chapter 113, Canadian Shipping, does not apply to the province of Ontario, so no dues are collected from vessels in that province.

## PROVINCE OF QUEBEC.

At the port of Quebec, sick mariners are cared for at the Jeffrey Hale and Hotel Dieu hospitals, at a per diem allowance of \$1.50 for each seaman, including medical attendance and board.

At the port of Montreal, sick mariners are cared for at the General and Notre Dame hospitals, the charges at each institution being \$1.50 a day, including board and medical attendance. Infectious and contagious diseases are attended at the Alexandra and St. Paul hospitals.

At the port of Three Rivers, sick mariners are cared for at the St. Joseph's hospital, per diem rate, 90 cents for each seaman. The medical officer receives \$350 per annum for his services.

At the port of Chicoutimi, sick mariners are cared for at the St. Valier hospital; rate, \$1.20 a day for each seaman, including treatment and board.



At the port of St. Johns the mariners are attended at the St. Johns hospital; rate, 90 cents a day. The medical officer receives a salary of \$600 a year.

At the ports of Rimouski, Montmagny, Sorel and Rivière-du-Loup, sick mariners are attended at the local hospitals, and the medical services are rendered by the port physician.

#### PROVINCE OF NOVA SCOTIA.

Marine hospitals are maintained at Louisburg, Lunenburg, Sydney, and Yarmouth.

At the port of Halifax, sick mariners are cared for at Victoria General hospital; rate, \$1.50 a day, including board and treatment. Contagious cases are treated at the City Isolation hospital.

At Pictou, sick mariners are taken to the Pictou Cottage hospital; rate, \$1 a day. The medical officer is paid a yearly salary of \$400.

At North Sydney, sick mariners are attended at the Hamilton Memorial hospital; rate, \$1 a day. The medical officer receives a salary of \$750 a year, including drugs supplied.

At Windsor, sick mariners are treated at the Payzant Memorial hospital; rate, \$1 a day. The medical officer receives a salary of \$120 a year.

At Amherst, sick mariners are treated at the Island View hospital; rate, \$4.50 a week. The medical and surgical services are rendered by the port physician.

At Parrsboro and vicinity, sick mariners are taken to the Cottage hospital at Springhill; rate, \$1.50 a day, including all costs.

At the port of Digby, sick mariners are treated in a designated hospital; rate, \$3 a week, besides a salary of \$50 for the caretaker. The medical officer receives a salary of \$250 a year.

#### PROVINCE OF BRITISH COLUMBIA.

At Victoria, sick mariners are treated at the St. Joseph's hospital; rate, \$1.40 a day.

At Vancouver, sick mariners are treated at the St. Paul hospital; rate, \$1.50 a day, including all costs.

At Nanaimo, seamen are treated at the Nanaimo hospital; rate, \$1 a day. The medical officer receives a salary of \$600 a year.

At New Westminster, sick mariners are taken to the St. Mary's hospital; rate, \$1.50 a day, including all costs.

At Chemainus and Ladysmith, sick mariners are treated in the local hospitals at the rate of \$1 a day, besides medical and surgical services.

At Prince Rupert, sick mariners are treated in the Prince Rupert General hospital; rate, \$2 a day. The port physician receives a salary of \$500 a year.

#### PROVINCE OF NEW BRUNSWICK.

A marine hospital is operated and maintained at Douglastown for sick mariners arriving at Chatham, Newcastle, and vicinity. The medical officer receives a salary of \$450 a year, and the keeper \$250 a year.

At St. John, sick mariners are treated in the General Public Commissioners' hospital; rate, \$1.50 a day, including all costs.



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At Campbellton, treatment is given at Hotel Dieu hospital; rate, \$5 a week. The medical officer receives a salary of \$350 per annum.

At Moncton, sick mariners are treated at the Moncton hospital; rate, \$4 a week. The medical officer receives a salary of \$200 a year.

## PROVINCE OF PRINCE EDWARD ISLAND.

At Charlottetown, sick mariners are treated in the Charlottetown and Prince Edward Island hospitals; rate, \$1.50 a day, including all costs.

At Summerside, sick mariners are treated at the Prince County hospital, rate, \$1 a day. The port physician receives a salary of \$250 a year.

Where no hospital is maintained in any port of the maritime provinces, Quebec, or British Columbia, the collectors of customs are authorized to care for sick mariners entitled to receive the benefits of the fund.

Statement of receipts and expenditure on account of "Sick and Distressed Seamen" from the fiscal year 1904 to 1914, both inclusive:—

	Receipts.	Expenditure.
	\$ cts.	\$ cts.
1904.....	61,778 29	50,801 78
1905.....	58,372 34	51,000 18
1906.....	60,183 90	50,120 42
1907.....	44,704 59	34,362 11
1908.....	69,364 45	59,957 92
1909.....	53,732 31	66,349 26
1910.....	55,567 41	54,859 50
1911.....	60,637 11	54,779 27
1912.....	63,663 41	52,172 75
1913.....	70,540 52	54,294 71
1914.....	72,602 43	65,397 85

Total amount of salaries paid to medical officers during the year 1914-15 was \$15,398.51.

Number of seamen treated was 3,030, compared with 3,245 in the preceding year, while the number of days of hospital treatment was 22,140.

Number of vessels which paid sick mariners dues during the year 1914-15 was 3,148, and the number of men employed on these vessels, 65,221.

## INVESTIGATION INTO WRECKS.

Captain L. A. Demers, Dominion Wreck Commissioner, reported that 26 formal, 10 preliminary and one departmental investigations into the cause of wrecks and casualties were held during the year ending December 31, 1914.

As a result of the investigations, three masters' certificates were suspended for one month, two for three months, one for six months and one for one year. One master was fined, and nine reprimanded or censured.

Two mates' certificates were suspended for three months, one mate cautioned and one exonerated.



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Two 2nd mates' certificates were suspended for three months, one cautioned and one exonerated.

Three pilots' certificates were suspended for three months, and one cancelled.

In the case of four wrecks or casualties it was adjudged that no one was to blame.

#### WRECK AND CASUALTIES OF SEA-GOING AND INLAND WATERS' VESSELS REPORTED.

The total casualties during the year amounted to 257 vessels with a total tonnage of 212,842.85 tons, and loss of \$5,211,700 and 1,114 lives.

Of this total 212 were coasting and sea-going vessels, with 181,055.85 tons; loss, \$5,083,765, and 1,113 lives; while forty-five casualties were to inland waters vessels of 31,787 tons, causing a loss of \$127,935 and one life.

The amount of damage was not stated in the reports of 104 sea-going and coasting and 27 inland waters casualties.

The number of total losses was: sea-going and coasting, 31 steam and 41 sailing vessels; and of this number 52 were Canadian, 6 British and 14 foreign vessels; inland waters vessels, 5, all of which were Canadian.

#### SHIPPING.

The total number of vessels remaining on the Register Books of the Dominion on the 31st of December, 1914, was 8,772, measuring 932,422 tons, being an increase of 227 vessels and 35,457 tons, as compared with 1913. The number of steamers on the Register Books on the same date was 4,054, with a gross tonnage of 744,783. Assuming the average value to be \$30 per ton, the value of the net registered tonnage of Canada on the 31st December, 1914, would be \$27,972,660.

The number of new vessels built and registered in the Dominion of Canada during the year 1914, was 327, measuring 43,346 tons net register. Estimating the value of the new tonnage at \$45 per ton, gives a total value of \$1,950,570.

A comparative statement showing the tonnage of each of the Maritime States of the world is again given in the List of Shipping.

During the year 212 vessels were removed from the Register Books, and a detailed statement is given showing the cause of their removal.

It is estimated that 45,163 men and boys, etc., inclusive of the masters, were employed on ships registered in Canada during the year 1914.

The List of Shipping is a separate report and contains details of registered ships.

#### MASTERS AND MATES, NAVIGATION SCHOOLS AND PILOTAGE.

In appendix No. 9 of this report will be found the number of applicants for Masters and Mates certificates, the number who passed the examination and the number that failed, and a list of certificates issued to Masters and Mates.

During the year the following certificates were issued: 14 masters', 18 mates', and 17 second mates', sea-going; 84 masters' and 68 mates' coasting certificates of competency; one master's certificate of service of inland waters; 32 masters' and 52 mates' certificates of competency for inland waters; two masters certificates of service minor inland waters; 52 masters' and 25 mates' minor inland waters certificates of competency, and 32 temporary certificates.



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Applicants who failed numbered one for mate and two for second mate, sea-going; six for master, four for mate, coasting; five for master and four for mate, inland waters; seven for master and four for mate, minor inland waters; one for master's temporary certificate; fifteen failed to pass the eyesight test.

The receipts for fees from applicants for masters' and mates' certificates amounted to \$4,561, and the expenditure on account of this service to \$12,723.17.

In connection with navigation schools numerous sessions were held by nine instructors, but the average attendance of seamen was not as large as the department expected, considering the advantage to seamen.

In the same appendix are included extracts of pilotage reports made by pilotage authorities to the Minister of Marine and Fisheries for the calendar year 1914.

The minister is the constituted pilotage authority for the Montreal and Quebec districts, and all matters relating to pilotage administration are directed and controlled from the Department at Ottawa and placed under control of the General Superintendent of Pilotage in the Montreal and Quebec district. The Decayed Pilotage Fund of the Montreal pilots is disbursed by the Finance Department of the Dominion Government and a similar fund of the Quebec pilots is managed by the Quebec Pilots' Corporation.

The receipts from pilotage service rendered in the Montreal district during the calendar year amounted to \$114,388.84, and in the Quebec district to \$157,150.05; the total expenditure for maintenance, retired pilots and salaries, amounted to \$46,433.07 for the calendar year, paid from Lighthouse and Coast Service appropriation for the administration of pilotage.

Twenty-nine pilotage authorities reported upon the transactions of their districts, and their reports are printed in appendix No. 9.

## SABLE ISLAND.

The report of the Superintendent of Sable island was forwarded by the agent at Halifax. It contains an account of the repairs made to the different buildings, and to the life-boats that are maintained on the island. The season was uneventful.

Wreckage of the *City of Sydney* was thrown up on the beach in March last.

The total population of the island is 50.

Patrolling around the island was done as usual.

Stock killed: 30 oxen and 20 hogs, for use of people connected with stations. The stock that remained on hand, were 65 head of cattle, 40 trained horses, 4 colts and 6 hogs.

## SUBSIDIZED WRECKING PLANTS.

The Quebec Salvage and Wrecking Company, subsidized by the Government under contract, returns a percentage of the earnings for services rendered to vessels that have been wrecked or requiring assistance from vessels of the company. From the 29th of April until the 30th of December, fifteen vessels in distress or to which casualties occurred received assistance. The services rendered were of greater or less importance, and are mentioned in the report of the company to the department and will be found in appendix No. 15 of this report. It will be seen that some of the vessels



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were towed to points where they were repaired temporarily and some repairs were made at the places where the casualties occurred.

In some instances divers examined the vessels to ascertain the injury sustained at the place where the vessels grounded.

On August 5th, the *Lord Strathcona*, one of the company's tugs, operated in connection with the recovery of bodies from the wreck of the ss. *Empress of Ireland*, and continued in the work for 46 days.

The subsidy paid to this company is \$25,000 per annum. The *Lord Strathcona* was maintained in readiness to assist vessels at St. John, N.B., during the winter season by special agreement.

The report of the British Columbia Salvage Company contains a detailed account of the operations between the 31st of March, 1914, and 31st March, 1915.

The company's steamer *Salvor* rendered salvage service on six occasions.

Vessels were towed into harbours to receive repairs. It will be seen by the report of the company that the *Salvor* was called upon to render service over an extent of sea waters from the strait of Juan de Fuca to Summer strait, Alaska.

The subsidy paid to the British Columbia Salvage Company was \$10,000 per annum under the original agreement.

#### MONTREAL HARBOUR COMMISSION.

The commission is composed, as last year, of Messrs. W. G. Ross, Farquhar Robertson, and A. E. Labelle, whose report presents in a concise and convenient form the chief features of the past year's operations.

The work under the project of 1909, adopted that year, has been progressing. The improvements indicated in last year's report, to be made in 1914, were carried out, some of the work completed, and a portion of it under way.

In the fall of 1913 the vote for a loan made by Parliament was about expended. A new loan on capital account of \$9,000,000 was voted by Parliament early in the spring of 1914 under Act 4-5, George V.

During the year the harbour was visited by His Royal Highness, The Duke of Connaught, Governor General, for the purpose of inspection.

The details of the work done at Montreal at the wharves, sheds, deepening of the harbour, enlarging, partial removal of Moffat island to lessen the St. Mary's current, determining of the boundaries at Longue Pointe and Bout de L'Isle, work in the vicinity of the dry dock, improvements and enlarging of the grain elevators, expenditure and receipts, are all described in detail in the report of the Montreal Harbour Commissioners, which forms appendix No. 13 of this report.

Among the important features of the administration might be mentioned in this brief summary some of the results of the operations in Montreal harbour.

Shipping is divided into transatlantic, coasting and lower ports vessels. The first vessel to arrive was the *Corsican*, which entered on the 29th of April.

The formation of the police force referred to in last year's report was completed in 1914. This force consisted of 35 constables who co-operated with the Dominion force of 40 men and the city police in maintaining order and in assisting to carry



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out the regulations of the harbour. Every important entrance was guarded and, as a result, persons having business on the wharves and at the sheds and other places were required to produce passes from the Harbour Commissioners. The system worked satisfactorily and the only troubles experienced were some minor offences.

A noteworthy fact was the increase of tramp vessels to Montreal which took the place of regular liners that had been requisitioned by the Imperial and the Dominion Governments and, therefore, withdrawn from their usual voyages. These tramp steamers numbered 224 and increased the record of arrivals. There were, at one time, 56 steamers in the harbour.

The total tonnage in 1914 of vessels entering was 9,044,457 registered tons. This was a large increase over any previous year. This tonnage of course included all regular transatlantic liners engaged in carrying freight and passengers in the earlier part of the year, as well as coasting and inland waters vessels throughout the season of navigation. In making comparisons between Dominion ports and all Atlantic ports in America, North and South, it should be borne in mind that the open season of navigation for regular trade in Montreal harbour is only seven months of the year. An open season occasionally prolongs the shipping season ten to fifteen days, giving opportunities for colliers and local steamers to enter or depart, and allowing work to be performed in the harbour during the extension.

The exports of products exceeded the exportation of 1913, especially of grain; the total shipments amounting to 75,085,432 bushels, not including grain products.

The grain elevators of the commission handled 62,318,814 bushels, of which 61,484,474 bushels were exported. The grain conveyers from the elevators were extensively used to carry the grain to vessels lying at their berths at the piers.

Delay in unloading grain vessels occurred several times owing to the capacity of the two large elevators being taxed to their extreme limit in loading and unloading, and insufficient storing capacity for the time being. In consequence of the congestion an extension to elevator No. 1 has been begun and will be completed, if possible, in the spring of 1916.

The harbour transferring railway extension progressed and when completed will afford excellent service to any prospective industrial concerns building alongside the track. Fifteen new steel coal cars were added to the rolling stock and about 40,000 tons of coal conveyed to different business concerns. This accommodation gave much satisfaction. The terminal lines were also used in conveying troops and their equipment from the Grand Trunk railway to the Canadian Northern, on the way to Valcartier. After the outbreak of the war steamship lines were employed in carrying war stores and gifts to the sufferers by the war.

The construction work by the Engineering Branch was pursued in the deepening of basin, channels and steamers' berths, and the relieving of the pressure of currents, all by the dredging plant of the harbour.

The work in the vicinity of the floating dock and shipyard was nearly brought to completion. Additions to grain elevator No. 1 progressed, also the improvements and completion of sheds 24 and 25; work at high-level wharves, maintenance generally of the whole harbour work, including the harbour railway tracks and market basin work were continued.



The electric hoists in the sheds, floating crane, grain conveyers, large elevators, floating grain elevators and other earning plant were kept in an efficient state. The plant for performing all harbour work consisting of tugs, dredges, railway plant, fire equipment, life-saving, etc., were kept in good working order.

The total receipts in connection with the revenue account, itemized in the report, amounted to \$1,466,364.27, the largest revenue in the history of the Harbour Commission; the disbursements on revenue account totalled \$1,459,455.08.

Capital account expenditure for construction work, improvements, changes and repairs amounted to \$1,758,368.83. The other financial operations, including advances from the Dominion Government in loans and disbursements for retiring debentures are shown in the general statement of the commissioners, appendix No. 13 of this report

### QUEBEC HARBOUR COMMISSION.

Extensive improvements were carried out in the part of the harbour entitled the Harbour Commissioners' property. The harbour front is not entirely under the control of the commissioners as in the case of the harbour of Montreal.

Previous to 1914 the office building and quarters for the staff were separated by the occupancy of different buildings which did not afford proper accommodation, but a convenient arrangement was effected by the construction of a building on Pointe à Carcy wharf, upon the site of the former grain elevator of the Great Northern Railway Company, destroyed by fire. The new quarters were occupied by the commissioners and staff during the greater part of 1914.

The work on the bulkhead wall at Princess Louise embankment was vigorously carried on up to August; 800 feet of substructure and 700 feet of superstructure were added to the wall. Filling in of material dredged in the harbour took place and an additional length of 500 feet of superstructure was built.

The grain elevator was completed and put in operation; the water system for supplying vessels with fresh water was extended on pier No. 1. Repairs and general maintenance occupied the attention of the Engineer and his staff.

Water was let into the wet dock in the latter part of April.

The railway of the harbour was extended and over it were conveyed 53,907 cars, about 19,000 of these being empty cars. The system is much used in conveying freight from vessels to the railway lines and from the lines to vessels.

*Plant.*—Six steel dump scows and ten deck scows were added; the tug *Aviso* was purchased; a bucket ladder dredge and a service tug were also added. The service boat is named *Laval*, is fitted with a salvage plant and a powerful fire-pump of 2,000 gallons per minute capacity. A 50-ton floating crane arrived from the contractors and was put in operation for hoisting guns on board transport vessels; a grain transfer boat arrived in the harbour but was not ready for work in 1914. The commissioners' motorboat was rebuilt.

The terminal railway received a new locomotive, making the fourth belonging to the traffic department.

The new berth on the river St. Charles' side of the breakwater was occupied for the first time and was used by some of the largest liners arriving in the harbour.



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The berth is 1,000 feet long and has a depth of water alongside of 35 feet at low water. The shed at the berth has a length of 950 feet by 80.

His Royal Highness the Duke of Connaught, Governor General, inspected the harbour and docks officially.

In August the German barque *Bellas* and the Austrian ss. *Ida* were detained in the harbour owing to the outbreak of the war in Europe.

The first transport ship left Quebec 24th of September and the last on October the 1st, 31 in all. The first Canadian war contingent left by these transport ships, which carried in all 31,000 men, 7,620 horses and wagons, stores, guns and ammunition, etc.

Berths for the ships were available at all times and the harbour was never taxed for accommodation. Eleven of these ships were in port at one time, gross tonnage, 118,000.

During the year the revised by-laws were in operation, which included rates of charges for use of the new floating crane, grain elevator rates, derrick rates and other new plant added to the improved harbour facilities for the accommodation and despatch of vessels.

The St. Charles docks afforded berthing accommodation for vessels of various sizes for loading and unloading cargo consisting of building materials, coal, merchandise and lumber. The total quantity of grain of all kinds handled at elevator No. 2 was 766,128 bushels.

Several vessels seeking the harbour in an injured condition were repaired in the Louise docks.

The total tonnage of transport ships using the harbour amounted to 317,847.

The receipts on revenue account amounted to \$287,194.39 and the expenditure to \$267,835.54, leaving \$19,358.85. The expenditure on capital account amounted to \$2,012,301.93. Of this sum \$1,994,960.03 was received from the Dominion Government under certain Acts of Parliament, the remainder from moneys at the disposal of the commissioners.

The harbour was open for sea-going vessels in the latter part of April and was clear of ice until the 9th of December. The last ocean-going steamer cleared on the 3rd of December.

The harbour can now be used by the largest size vessels entering the St. Lawrence at any time of the tide, day or night, and steamers of this class are easily berthed. The facilities for landing passengers or embarking are most excellent and freight can be handled even of the heaviest kind by hoists and otherwise with despatch.

The grain elevator has a capacity of 1,000,000 bushels and is well equipped for elevating and loading grain; the new transport grainboat will carry 30,000 bushels.

Appendix No. 13 of this report contains a detailed report of the Quebec Harbour Commissioners in full.

## THREE RIVERS, P.Q., HARBOUR COMMISSION.

The report of the Harbour Commissioners of Three Rivers forms part of appendix No. 13. The wharf under construction in that harbour was not completed



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in 1914 owing to the difficulty in getting material for the top or deck, consequently the wharf is not used for landing coal as desired.

Trade in the harbour was more or less interfered with by the declaration of war in Europe, but part of the falling off in the lumber trade was due to other causes, principally by the depression in construction of buildings in the United States, to which country a large quantity of building material has hitherto been shipped from Three Rivers. The total quantity of lumber shipped was 29,848,000 feet.

The number of vessels which cleared for ocean ports was 55, tonnage 130,692; barges and canal boats which cleared for the United States numbered 203, tonnage 24,993; and inland water vessels numbered 509, tonnage 107,813; total cleared, 263,498. In addition a number of market boats daily arrived and cleared and the Richelieu and Ontario Navigation Company's boats made regular calls.

The total receipts on revenue account amounted to \$23,424.98, and the disbursements in connection with revenue to \$19,256.98. Other financial statements appear in the report of the commissioners.

#### PICTOU, N.S., HARBOUR COMMISSION.

The work principally done consisted of attending to the buoy service, bushing the harbour channel and the East river.

Receipts from harbour dues amounted to \$989; payment of harbour master's salary, \$200; and other expenses amounted to \$478, leaving a balance in the hands of the commissioners from previous years and the year 1914 of \$1,635.87.

#### BELLEVILLE, ONT., HARBOUR COMMISSION.

The report of the commissioners contains a financial statement of the year's transactions and a statement of the imports and exports dealt with by the commissioners.

The receipts from harbour dues were \$2,314.77, and expenditure in connection with the revenue account to \$936.99. The sinking fund for redeeming debentures amounts to \$5,712.55. The report is included in appendix No. 13 of this report.

#### VANCOUVER, B.C., HARBOUR COMMISSION.

The commissioners report that their work from May, 1914, to the 31st of March, 1915, has been large. Surveys have been made of a preliminary character and plans prepared of proposed changes and improvements in facilities for encouraging trade and manufacturing along the harbour front. The tide flats near Granville street bridge in an area of forty-one acres will be utilized by preparing and laying out sites for industrial and shipping concerns. It is proposed to lay out the reclaimed property in such a way as to give the advantage of railway track convenience and water frontage for berthing vessels.

Headlines have been established to secure as far as possible uniformity at the outer ends of wharves in deep water.



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Widening of the channel at the First Narrows, by the Dominion Government, is proceeding; advantages already noticeable are the reduction in the rate of current at this entrance of the inside part of the harbour and safer navigation.

The revenue from harbour dues and rentals amounted to \$28,875.94; the disbursements amounted to \$29,483.29; outstanding accounts to be deducted from disbursements, \$2,315.13.

The report in detail forms part of appendix No. 13 of this report.

## TORONTO HARBOUR COMMISSION.

Owing to a re-audit of the accounts of the Toronto Harbour Commission delay has occurred in completing the annual report of the Commissioners for 1914. The harbour master's report forwarded to the department is the only official information received. The entire report of the commissioners will be published separately and will, it is understood, contain details of engineering operations, improvements and financial statements. The portion of the report received forms part of appendix No. 13 of this report.

The new western channel has been completed and has a depth of 16 feet below zero of the harbour gauge, and a clear width of 400 feet. The north pier is 2,236 feet long and the south pier 2,538 feet in length. The revetment wall at the easterly end of this channel has been completed for a distance north and south of the piers.

At the eastern channel 660 feet of concrete superstructure has been added to the east pier.

There was a falling off in the number of arrivals in the port, principally in freight carriers. The first arrival in the harbour was a passenger steamer, on the 4th of April; the last departure was on the 6th of December.

Much dredging was done in Ashbridge bay during the year and the material removed used as filling for the dock. The foundation and approaches of Parkdale Canoe Club were completed and a fair start made on the building. The foundation of a foot bridge from King street to the foot of Wilson avenue was completed and the steelwork will likely be erected during the year 1915.

Three suction dredges were at work during the open season and a total of 733,266 cubic feet of material removed and placed on lowland sections, 40 acres of which have been thereby greatly improved, besides a large quantity of back filling supplied to docks.

Extensive surveys were made and detail levels taken on Toronto island.

Soundings were made in different sections of the harbour, both in summer and winter.

Plans of various kinds were made and carefully filed preparatory to the extensive improvements contemplated by the commission.

The docks and wharves were kept in repair. The southwest portion of dock 3 was taken down to the water line and entirely rebuilt.

## STEAMBOAT INSPECTION.

During the fiscal year the work of steamboat inspection was carried out as usual, generally speaking.



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The department regrets the death of Mr. Wm. Laurie, inspector of boilers and machinery in the Montreal district; his death occurred on the 12th of November, 1914. Mr. Laurie was the oldest member of the Board of Steamboat Inspection in connection with boilers and machinery.

Mr. John T. Matthews was appointed inspector for Alberta, Saskatchewan and the Northwest Territories, with headquarters at Edmonton, in October, 1914.

The revised rules relating to life-saving appliances on board steamships were approved in November last.

The number of vessels inspected, registered in the Dominion, was 2,037, gross tonnage 681,770; vessels registered elsewhere 187, gross tonnage 289,181; vessels not inspected 360, gross tonnage 62,893; the total number of vessels subject to inspection when in commission was 2,583, gross tonnage 1,033,844. The number of steam vessels added to the Dominion was 127, gross tonnage 82,434; vessels broken up or destroyed 82, gross tonnage 17,241.

The fees collected by the inspectors on account of steamboat inspection amounted to \$1,042.06, and the fees from examination of engineers to \$1,577.

#### LIST OF INSPECTORS.

##### *Boilers and Machinery.*

N. A. Currie, Halifax, N.S.	J. B. Stewart, Toronto, Ont.
D. J. Murray, Halifax, N.S.	G. M. Arnold, Toronto, Ont.
C. E. Dalton, St. John, N.B.	E. W. McKean, Collingwood, Ont.
J. H. Fontaine, Quebec, P.Q.	W. J. Vigars, Port Arthur, Ont.
F. X. Hamelin, Sorel, P.Q.	G. P. Phillips, Kenora, Ont.
W. Laurie, Montreal, P.Q., died 12-11-14.	J. T. Mathews, Edmonton, Alta.
J. E. Lunan, Montreal, P.Q.	B. Mantrop, Victoria, B.C.
T. P. Thompson, Kingston, Ont.	W. J. Cullum, Victoria, B.C.
J. Dodds, Toronto, Ont.	H. G. Robinson, Vancouver, B.C.
	A. E. Hopper, Vancouver, B.C.

##### HULL, AND EQUIPMENT.

A. McDougall, Halifax, N.S.	W. Evans, Toronto, Ont.
I. J. Olive, St. John, N.B.	S. D. Andrews, Collingwood, Ont.
P. Duclos, Quebec, P.Q.	G. P. Phillips, Kenora, Ont.
M. R. Davis, Kingston, Ont.	J. T. Mathews, Edmonton, Alta.
	F. F. Pichard, Victoria, B.C.

#### CORRESPONDENCE AND RECORDS BRANCH.

The Records Branch of the department embraces the receiving, classifying, recording and despatching of letters. The letters and telegrams received are registered, numbered, stamped with date received, indexed, placed on files, and the files charged and distributed to the officers who take action upon the letters and telegrams. Copies of letters are placed upon the files, and the files examined to ascertain if all letters have been answered or acknowledged, and then they are discharged and placed in receptacles.

The registering of letters consists of entering the number of the file and a brief synopsis of the subject of the letter; the indexing includes the card system applied to personal names, and the loose-leaf system applied to locality names, names of subjects, and vessel names.

The letters and telegrams despatched are copied in letter-press books and indexed. The number of letters despatched during the year was 36,592. The increase in the



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number of letters received and despatched during the last ten years shows the growth of the work of the department and consequent increase of staff, as a whole, including the Records Branch. An establishment record is maintained in this branch in which the names of all employees of the department, with particulars of service, are recorded and indexed by the loose-leaf and card index system, under the heads of personal names, localities, vessels, and electoral districts, as well as being grouped under the various services.

The letters received in 1901 numbered 18,741, and despatched 13,000; while in the past year 51,832 were received and 36,592 despatched.

## SHIPPING AND DISCHARGING OF SEAMEN.

According to the ninety-six returns sent in by shipping masters during the year ending December 31, 1914, 18,987 seamen were shipped, 14,989 discharged, and the sum of \$13,325.45 was collected as fees which were retained by the shipping masters as remuneration.

A statement of returns follows:—

	No. of Returns.	Seamen Shipped.	Seamen Discharged	Amount.
Nova Scotia.....	63	8,817	6,444	\$5,737 40
Prince Edward Island.....	7	214	128	144 65
New Brunswick.....	13	2,310	2,377	1,415 40
Quebec.....	7	3,049	1,584	2,151 70
British Columbia.....	6	4,597	4,456	3,876 30
	96	18,987	14,989	\$13,325 45

A statement showing result of returns of the shipping and discharging of seamen, for the year ending December 31, 1914, forms appendix No. 17 to this report.

## PORT WARDENS.

Fourteen returns have been received from port wardens during the year—seven from Nova Scotia, one from New Brunswick, two from Quebec, and three from British Columbia.

The total amount of fees collected was \$16,032.31, which was collected by port wardens for surveys of hulls, hatches and cargoes and for granting certificates of seaworthiness. The fees range from \$8 to \$20, according to the time and number of assistants employed in the surveys.

The secretary of the Board of Trade of Montreal, to whom the port warden reports, forwards a full report of the number, kind, nationality and tonnage of the vessels which enter and clear at the port warden's office during the year; the amount and kinds of imports and exports, the time of the opening and closing of navigation and a detailed account of the investments and proceeds thereof during the year.



LIST OF PORT WARDENS WHO MADE RETURNS AND AMOUNT OF FEES COLLECTED.

Port.	Port Warden.	Fees.
		\$ cts.
Annapolis Royal, N.S..	Joseph J. Melanson.....	Nil.
Chatham, N.B.....	M. A. Goggin.....	"
Halifax, N.S.....	Neil Hall.....	2,357 25
Louisburg, N.S.....	Donald J. Matheson.....	96 00
Montreal, P.Q.....	Archibald Reid.....	9,412 06
Nanaimo, B.C.....	J. S. Knarston.....	15 00
Pictou, N.S.....	James Reid.....	20 00
Port Hawkesbury, N.S.....	Nicholas Martin.....	64 00
Quebec, P.Q.....	Alex. Russel.....	1,524 50
Sydney, N.S.....	Neil H. Townsend.....	556 00
Vancouver, B.C.....	S. Cullington.....	1,324 50
Victoria and Esquimalt, B.C.....	Chas. E. Clarke.....	488 00
Westport, N.S.....	William B. Welch.....	Nil.
Yarmouth, N.S.....	R. M. Ferguson.....	175 00
		16,032 31

AGENCIES.

Reports of agents under the control of the department were as usual received at the close of the fiscal year. These reports contain in detail the local work and transactions.

At Halifax the removal of the agency offices and stores from the dockyard to the Dartmouth depot of the department was accomplished. The depot was found too small in most respects for the offices, storehouses and buoy accommodation. Additions were consequently made and work will be proceeded with in 1915 in order to afford wharf and other necessary accommodation. The depot is approached from Halifax by ferry and is less convenient than the dockyard.

The loss of the lightship *Halifax No. 19*, built in Great Britain under contract to be delivered at Halifax, was greatly regretted owing to the loss of all of her crew when the vessel overturned in a gale on the rocky shore at Liscomb, N.S.

The lightship *Anticosti*, usually taken from Anticosti island in the fall and placed off Halifax harbour during the winter, was retained at Halifax.

A full statement of the movements of the steamers employed in this agency and the report on the inspection of lighthouses, and of the local engineer, were included in the report of the agent at Halifax.

STEAMERS UNDER CONSTRUCTION.

There is under construction at Selkirk, Manitoba, a twin-screw steel steamer, to be sheathed with wood, for the use of the Marine and Fisheries branches in Manitoba.

The length of the steamer, between perpendiculars, will be 151 feet, breadth moulded 26 feet 6 inches, depth 13 feet 6 inches, draught loaded 7 feet 6 inches, and coal capacity 60 tons. The engines will be two sets of triple expansion jet condensing



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engines of 900 combined indicated horse-power and will be supplied with two scotch type of boilers and Howden's forced draught. Two engines are being built at Polson Iron Works, Toronto, for this steamer.

The steamer will be fitted with appliances for placing and lifting buoys in the marine service and equipped for the fisheries service.

Another steamer is being built in the Sorel shipyard for testing service in the St. Lawrence ship channel. This steamer is also a twin-screw steel steamer, length 140 feet, breadth 35 feet, depth 14 feet, and draught loaded 10 feet, coal capacity 100 tons. The boilers of this steamer will also be of the scotch type and her horse-power 650 indicated.

The machinery for this steamer is being built by New Burrell Johnson Co., of Yarmouth, N.S.

Another steamer is being built in the Sorel shipyard for use in the ship channel work below Quebec, length 120 feet, breadth 24 feet, depth 12 feet 6 inches, draught loaded 10 feet, coal capacity 50 tons.

The machinery will consist of two sets of compounding surface condensing engines of 650 combined indicated horse-power and one scotch boiler. The engines are being built by the New Burrell Johnson Iron Co., Ltd., Yarmouth, N.S.

Another steamer is being built at Sorel shipyard for buoy service in the Ottawa river, to be used in the Montreal agency.

This steamer will be 100 feet long, 21 feet in breadth, 9 feet deep, and when loaded will have a draught of 5 feet 6 inches.

Another vessel, a single-screw steel coal barge, for the St. Lawrence river ship channel service, is also under construction at Sorel.

The leading dimensions are: 172 feet in length, 32 feet in breadth, 13 feet deep, and loaded will have a draught of 10 feet 6 inches.

This vessel is fitted with accommodation for crew and has two large holds for coal. The coal will be handled by a steam crane clam having a capacity of one ton, the crane to lift five tons, and can be used for lifting buoys if necessary.

*Grenville.*

The *Grenville* is intended for the buoy service in the Prescott district and to take the place of the *Scout*.

The vessel is being built in the Polsons Iron Works shipyard at Toronto, and is nearly completed.

She is a single-screw steel steamer and the leading dimensions are, length over all 164 feet, between perpendiculars 155 feet, breadth 30 feet, and depth 13 feet.

The vessel is to be fitted with water ballast tanks and water-tight compartment bulkheads.

The engine is triple expansion, to develop 900 indicated horse-power, with scotch tubular boilers having a working pressure of 180 pounds to the square inch.

The steamer is to have Howdens forced draught system.

A more detailed description will be published in the next Annual Report, as the vessel will be delivered during the fiscal year 1915-16.



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## NEW ICEBREAKER FOR THE ST. LAWRENCE RIVER.

This icebreaker is being built in the shipyard of Canadian Vickers, Ltd., at Montreal. The vessel was partly constructed when the war broke out in Europe, but circumstances over which the builders had no control caused the suspension of work. The contractors had shown, to the satisfaction of the department, that they were unable at the time to proceed with building and applied for an extension of time in which to build the icebreaker. This extension of time was agreed upon.

The leading dimensions of the icebreaking steamer will be 292 feet in length over all, 275 between perpendiculars, 57 feet 6 inches extreme breadth, 32 feet in depth, and will have a draught of 19 feet.

The propelling engines will be two sets of triple expansion surface condensing engines with working parts 60 to 35 per cent in excess of Lloyds requirements. The boilers are to be two double-ended and four single-ended scotch boilers, allowing a working pressure of 180 pounds of steam per square inch.

The hull will be divided by transverse and longitudinal water-tight bulkheads.

The steamer is to be built under Lloyds special survey and in accordance with the Dominion Steamboat Inspection Act, and is to class 100 A1 at Lloyds.

## REVISION OF THE CANADA SHIPPING ACT.

The revision of parts 7 and 9 of The Canada Shipping Act has been making progress and the Bill No. 105 of 1914 was prepared for Parliament. It was read the first time at last session of Parliament.

A. JOHNSTON,

*Deputy Minister of Marine and Fisheries.*



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## APPENDIX No. 1.

ANNUAL REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT  
OF MARINE.

The Deputy Minister of Marine,  
Ottawa.

SIR,—I have the honour to submit the following report of the work done in the several services under the supervision of this office during the twelve months ended March 31, 1915.

There have been no changes in the duties pertaining to this branch during the past year; they remain as enumerated in previous reports.

## STAFF.

The following changes have been made during the year in the staff of my office:—H. E. Fosbery, temporarily employed as resident engineer in the New Brunswick agency, was recalled to headquarters and has been employed as an assistant engineer since April 1, 1914; E. E. Clawson was appointed an assistant engineer April 17, 1914; N. T. Binks was employed as a temporary draughtsman from May 1 to August 31, 1914; T. L. O'Hara was employed as a temporary third-class clerk September 26, 1914; Miss E. St. J. Wileman was employed as a typist from September 28, 1914, to March 31, 1915; W. B. Lemont was engaged as construction engineer on October 2, 1914, and has since been engaged in charge of day labour work on outside construction; H. A. Lynch was temporarily employed as draughtsman on October 8, 1914; Gerald T. McInerney was employed as a clerk on November 23, 1914; Leo McInerney was employed as draughtsman November 27, 1914, and on January 14, 1915, was sent to Prescott depot to assist Mr. Chabot and Mr. Thompson.

I desire to testify to the general good conduct of my whole staff, and to the satisfactory way in which they perform the duties allotted to them.

## OFFICE WORK.

The largest part of the work done by the general staff of the branch consists in the construction, repair and improvement of light-buildings, fog-alarms, beacons and other aids to navigation, the supply of new or improved illuminating apparatus, etc., the payment of expenditures for these services being made out of the vote of \$1,000,000 for construction of aids to navigation. Full details of the work done in this connection during the past year are contained in a separate report in tabular form attached hereto, which gives a complete statement of all expenditure charged to the vote in question. (Inclosure A.)

In addition to the work of this branch done under the above vote, the staff have been called upon to perform work of varied description for other branches of the department, and which may be summed up as follows:—

*For the Meteorological Service Branch.*—Erection of storm signal masts at the following places: Chatham, N.B.; Scatari, N.S.; and Port Hope, Ont.



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*For the Naval Department.*—One of the department's foremen was lent to the Naval Service Department during the months of December, January, February and March to supervise the construction of a wireless station at Barrington passage, N.S., and completed the work to the satisfaction of the officers of that department.

The work of completion of titles to all properties owned or leased by this department, mentioned in my last year's annual report, has been continued, and title documents have now been obtained to the sites of nearly all our lighthouse, fog-alarm and other public works under the administration of the Marine branch of this department.

The titles to the sites of all public wharves transferred to the control of this department, numbering about 1,000, are also being investigated, and copies of all deeds and other documents, with plans and descriptions affecting the same are being procured for our title records, so that eventually it is hoped to obtain a complete record.

During the past year 204 deeds and other title documents in connection with this work have been added to our records. In the case of all new properties acquired, expropriation plans and descriptions are prepared in my office, and recorded in the county registry offices, in addition to the usual notarial deeds, as an extra precaution.

My branch has also attended to the preparation of expropriation plans and securing of deeds for all sites obtained during the year by the Departments of Fisheries and of Naval Service.

This branch has also undertaken to make a complete record of the limits of all public harbours established in Canada, and these limits are plotted on plans which are constantly being added to and will eventually comprise a set covering the shore line of the whole of the Dominion. This work is now under way, and considerable progress has been made during the past year.

The work in connection with applications for water lots has continued heavy, as will be seen by reference to the draughting-room statistics. Every application has to be examined, entered on an index plan, plans and descriptions checked, and the proposition reported on and valued. This involves a great deal of detail and takes the time of one draughtsman. Both the above branches of work are in charge of Mr. J. W. G. Roberts, whom I desire again to bring to special notice.

Progress has been made in the establishment of headlines in some of the principal public harbours, based on joint action by this department and the Department of Public Works. It is hoped that such establishments will tend to the improvement both in appearance and convenience of the water fronts affected. During the past year headlines have been established by Order in Council in the following harbours:—

Victoria, B.C.; Vanvouver, B.C. (partial); Prince Rupert, B.C.; Sault Ste. Marie, Ont.; Sandwich, Ont.; Ojibway, Ont.; Anderdon (part of Amherstburg), Ont.; Hamilton, Ont.; North Sydney, N.S.

Plans and spécifications for all important new buildings and repairs, new vessels, etc., are made or approved in this office.



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The following table indicates the work done in the draughting office during the twelve months ended March 31, 1915:—

Description of Work.	Plans Designed.	Plans Received.	Copies Made.	Difference from Last Year.
Lighthouse towers and dwellings.....	71	16	606	+209
Fog alarm buildings.....	5	0	78	-159
Details.....	35	18	750	+421
Wharves, piers, etc.....	21	190	94	+199
Outbuildings.....	11	2	134	- 18
Machinery.....	15	93	108	+ 34
Lanterns and illuminating apparatus.....	18	177	170	-144
Buoys and appurtenances.....	13	194	325	- 12
Beacons.....	4	17	25	+ 26
Steamers.....	0	22	2	- 88
Land surveys.....	120	273	868	+541
Plans relating to waterlot applications.....	10	365	67	-254
Miscellaneous.....	40	1,309	219	+739
	363	2,676	3,446	+1,484
Total plans for 12 months from April 1, 1914, to March 31, 1915.....			6,485	+1,484
Charts received and recorded.....			399	- 3
Charts received and entered in chart books.....			46	- 5
Photographs received and recorded.....			200	- 203
Specifications and bills of material written.....			155	+ 15
Notices to mariners issued (comprising 530 subjects).....			158	+ 7

PUBLICATIONS.

The work of preparing and issuing notices to mariners continues to be heavy and urgent. During the past twelve months 158 notices, covering 530 subjects, have been published, being an increase of seven notices and forty-three subjects over last year.

Amongst miscellaneous notices to mariners the following involved considerable research, or labour, in compilation:—

Warnings respecting conditions arising from the war now in progress were issued in a general notice on the outbreak of hostilities, and subsequent notices requiring British ships to show their colours when signalled; respecting the approach to Halifax, N.S.; announcing the temporary discontinuance of Mauger Beach fog-alarm, Nova Scotia; the closing of channels in the approach to the Thames, England; the extinguishing of lights, etc., on the east coast of England and Scotland; the laying of submarine mines in the North sea; signals by vessels when inconvenienced by searchlights; caution when approaching British ports and with regard to discontinuance of aids to navigation; channels to be used in the Thames; suspected craft to be reported; western part of Broughton strait closed (and later reopened); cautions regarding extinction of British Columbia lights; also to masters of British Columbia vessels; special regulations for navigating Barkley sound, B.C. (later cancelled); examination anchorage in Lough Swilly, Ireland; prohibited anchorage in the southern approach to Scapa Flow, Scotland; prohibited passage in Firth of Forth, Scotland; new pilotage stations in the United Kingdom on account of mine-fields; a further similar notice for Scotland; special regulations for traffic in the Mersey; passage north of Ireland prohibited; extensive changes in aids to navigation in North sea and English channel; regulations for approaching Canadian ports, examination and sweeping; another similar notice for British ports; channel south-



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ward of Breaksea lightvessel, Wales, prohibited; restriction of navigation in the Irish channel; aids to navigation discontinued in channel north of Orleans island, P.Q.; caution with regard to mined areas in the North sea; regulations for approach to Folkestone, and lightvessels; information regarding lights, lightships and pilotage in the North sea, river Thames, and English channel; also the river Humber; public traffic regulations for the port of Halifax, N.S.

Buoys established, rearranged or improved in character were described in notices to mariners covering the following localities: Princes inlet and approach, Mahone bay, N.S.; Musquodoboit inlet, N.S.; St. Ann harbour, N.S.; Whitby, Ont.; Green shoal and East Templeton, Ottawa river, Ont. and P.Q.; Grande Anse, N.B.; Toronto harbour approaches, Ont.; the channel northwestward of cape Hurd, Ont.; Napanee river, Ont.; the inside channels between Penetanguishene and Parry Sound, Ont.; northwest of Grenadier island, Ont.; Répentigny channel, P.Q.; East bay, Bras d'Or lake, N.S.; Penetanguishene harbour, Ont.; South Nation river mouth, Ont.; Picton, Ont.; Halifax approach, N.S., for war purposes; Lighthouse bank, N.S.; channel northward of Gibbons point, Little Current, Ont. (two notices); St. Simon inlet, N.B.; Collingwood, Ont.; Little Liscomb harbour, N.S.; Pointe Citrouille anchorage, P.Q.; Nanaimo, B.C.; River Philip, N.S.; Horseback bar and Cap Charles channel, P.Q.; approach to Turner island, N.S.; entrance to North Rustico, P.E.I.; and Pitt river, B.C.

Beacons established in the inside channel between Penetanguishene and Parry Sound, Ont.; in the St. Francis river, P.Q.; in Yamaska river, P.Q.; and entrance to Courtenay river, B.C.

Uncharted dangers were described northward and southward of Erasmus islands, Cordero channel, B.C.; in Takush harbour, B.C.; westward of Limestone island, Quatsino sound, B.C.; south of Grand Manan, N.B.; in Blind bay, B.C.; off Plover point, Lewis pass, B.C.; in Skeena river, B.C.; in Rolling roadstead, Esperanza inlet, B.C.; Lockeport, N.S.; and Johns cove, N.S.

Hydrographic notes were compiled respecting Prince Rupert harbour, B.C.; Cap de la Madeleine, P.Q.; Port Essington, Skeena river, B.C.; Murray harbour, P.E.I.; and river Philip, N.S.

Dredging performed, chiefly by the Department of Public Works of Canada, was described in the following localities: Hilton, Ont.; Walker river, Ont.; Whitby, Ont.; Green shoal, Ottawa river, P.Q.; Cap de la Madeleine, P.Q.; in Napanee river, Ont.; Penetanguishene, Ont.; Collingwood, Ont.; and Nanaimo, B.C.; and by the Marine Department ship channel staff at Horseback bar and Cap Charles channel, P.Q.

Regulations governing the operation of swing spans of railway bridges in Canada.

Caution with regard to sweeping operations off ports in Canada.

Directing light-draught vessels navigating the river St. Lawrence between Lanoraie and Varennes to use the Répentigny (north) channel.

Description of the new main channel through the Sandheads at the entrance to the Fraser river, new positions of lightships and South Curve light, and buoyage of channel.

Notice of new edition of *Tide Tables* for the Pacific coast of Canada, for the year 1915, published by the Department of the Naval Service, Ottawa; time of slack water in Dodd narrows and Seechelt rapids.

An item relating to ice patrol service off the east coast of North America, to locate the icebergs and field ice nearest to the trans-Atlantic steamship routes.

During the past twelve months notices relating to waters outside of Canada were issued, covering thirteen items relating to Newfoundland and Labrador, four items relating to the Atlantic, thirteen to the inland, and eight to the Pacific waters of the United States, nine items relating to the Panama canal, and one item relating to Lower



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California, as well as five notices relating to transatlantic and one notice relating to transpacific subjects. No attempt is made to issue a complete synopsis of British or foreign notices, but merely to publish items likely to be of immediate interest to Canadian vessels, or to vessels leaving Canadian ports for the more important or frequented foreign ports.

The annual edition of the "List of Lights and Fog Signals" was prepared and published in three separate volumes, one for the Atlantic coast and the river St. Lawrence to head of ocean navigation, one for the inland waters of Canada, and the third for the Pacific coast.

I can again commend Mr. J. M. O'Hanly for the careful and conscientious work he devotes to this division of my branch's work.

## PERSONAL INSPECTIONS.

During the past year, as in previous years, pains were taken, both by the Chief Engineer and by his chief assistant, to ascertain by inspection the state of the works under their charge, and such personal supervision is considered of prime importance in securing efficient administration.

Amongst inspection trips made by the Chief Engineer may be enumerated one of the Great Lakes in July, from Prescott to Parry Sound, on the steamer *Lambton*, when most of the lightstations on that stretch were thoroughly examined; an inspection of aids to navigation on lake St. Francis in August, in company with Captain Taylor, officer in charge at Prescott; an inspection of Chenal aux Barques in November in company with Mr. Forneret, engineer in charge of ship channel improvements, to locate aids to navigation for shallow draught vessels; and the location of a new range light at Coles shoal.

In May the Chief Engineer attended the City Planning Conference in Toronto, and laid before the meeting the desirability of improving city water fronts in such a way as to preserve the beauty of the approach while fully utilizing the commercial possibilities; in January, 1915, he attended the annual meeting of the Lake Carriers' Association in Detroit.

From August 29 to October 26, 1914, he was absent on an inspection trip to British Columbia, and in company with Captain Robertson, Agent, and Mr. Wilby, District Engineer, visited all stations at which work was in progress or contemplation, besides inspecting the departmental depot at Prince Rupert. This visit involved a large amount of executive work which has been dealt with in connection with the official administration of the several stations visited, and the results of this trip are considered to be particularly satisfactory.

With a view to keeping in touch with the latest developments in aids to navigation, the Assistant Chief Engineer of the department, Mr. B. H. Fraser, was sent to Europe in April last. He visited the principal factories engaged in the manufacture of lighthouse equipment in France, Germany, Sweden and Great Britain.

He also took up with the lighthouse authorities in the several countries visited the question of the construction of different types of aids to navigation. Copious notes were taken and much information of value collected. This is chiefly of a technical character and was embodied in special reports which have been distributed among the files of the department, where they are available for permanent reference.

## LIGHTING OF HUDSON BAY ROUTE.

A development of the department's work during the past year that appears to be worth special mention in this report is the establishment of aids to navigation in



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Hudson strait and bay, provided at the request of the Department of Railways and Canals, to facilitate navigation in connection with the railway communications which are now approaching completion.

Ten gas lights were established, an assistant engineer of my branch, Mr. E. E. Clawson, being sent to Hudson bay on the *Minto* to attend to the work of installation. The Aga system, of acetylene dissolved in acetone, was adopted because it was considered that with this system lights could be maintained during the entire season of navigation without attendance. The lights were erected on posts, with tanks charged with gas under pressure, but the lights were not lit. It is proposed to send a government vessel to Hudson bay on the opening of navigation next year to put them in operation.

The total expenditure in connection with the supply and erection of these lights was \$68,796.34, as will be found by reference to enclosure A hereto annexed.

#### DEPARTMENTAL DEPOTS.

Since my last report the departmental wharf in Victoria harbour, British Columbia, has been completed very satisfactorily by Messrs. Parks, Tupper & Fitzpatrick, and the wharf is now in use by the department principally for the storage of heavy buoys. It will be necessary to provide storehouses and equipment in connection with this wharf but the work has been postponed until the new grade of Johnston street has been settled and the new bridge accurately located. It is hoped to make some progress, at least with storage sheds, during the next fiscal year.

At St. John, some delay has occurred in the completion of the wharf by the contractor principally in consequence of unforeseen difficulty in securing a foundation at the northeast corner where the rock drops away very quickly. It is expected that the work will be completed early in the coming fiscal year and that storage sheds at least will be provided during the year.

At Halifax, in consequence of the Department of Naval Service requiring the whole of the dockyard property following war operations, it has been necessary for this department, on very short notice, to reoccupy the old departmental property on the Dartmouth side of the harbour. Emergency works were undertaken to make this property immediately available for the department's requirements, but before the work is completed extensive alterations and improvements will have to be carried out. A careful investigation has been made and reports and estimates submitted covering the above. Numerous points had to be attended to, such as the procuring of necessary approaches, roadways, water supply, light and heat, telephone accommodation, wharf accommodation, workshops, stores, offices, etc. Yard space has to be provided and provision made for the accommodation of the departmental ships and handling of buoys, etc.

Up to the close of the fiscal year \$5,183.23 has been expended, as will be seen by enclosure A annexed. Plans have been prepared for an addition to the existing wharves, estimated to cost \$15,000, the contract for which will be let next year. The total estimated cost (not including wharves) of adapting the property for the permanent use of the agency is about \$35,000.



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## REMOVAL OF OBSTRUCTIONS.

During the past twelve months the following work has been done under the annual appropriation for the removal of wrecks and obstructions to navigation:—

	Cost.
Bear river, N.S.....Clearing channel of stumps, etc.....	\$ 10 00
Margaree harbour, N.S.....The wrecked Steamer "Electra" removed by Capt. G. LeBlanc under contract.....	150 00
Guysboro harbour, N.S.....Hulk of an old vessel removed by the master of Canadian Government steamer "33".....	32 85
Barrington passage, N.S.....Wreck of schooner "Annie R. Lewis" removed by Chas. Brister & Son.....	10 00
Yarmouth harbour, N.S.....Hulk of an old vessel removed.....	75 00
North head, Grand Manan, N.B.....Several sunken moorings in harbour removed by J. E. Gaskill under contract.....	44 75
St. John river, N.B.....A number of deadheads causing an obstruction in the channel removed.....	500 00
Charlottetown harbour, P.E.I.....Wreck of "Elfin" removed by W. H. Batt under contract.....	
Summerside, P.E.I.....A number of waterlogged and submerged logs lying in the harbour removed by C. G. S. "Brant".....	1,273 81
Lachine, Que.....Wreck of Str. "Rhoda" removed by day labour.....	1,450 00
Lake St. Clair, Ont.....Wreck of "Chas. Crawford" removed by F. J. Trotter, Amherstburg, under contract.....	4,900 00
Lake Erie, near Amherstburg, Ont...Wreck "City of London" removed by F. J. Trotter, Amherstburg, under contract.....	
Port Dalhousie, Ont.....The wrecked dredge "Delver" was removed by the owners.	
A number of small expenditure, such as tug hire, advertising and incidental expenses were incurred.....	82 53
Total amount expended this year under this vote.....	\$ 8,528 94

## MAINTENANCE AND REPAIRS TO WHARVES.

Wharves owned by the Government are usually built by the Department of Public Works of Canada, and on completion come under this department for maintenance (see R.S.C., cap. 112, and amending Acts). We have had formally transferred to our control 372 public wharves, but there are probably twice that number of the completion of which we have not been officially notified, and where wharfingers have not yet been appointed.

This branch attends to minor repairs. Large repairs are undertaken by the Department of Public Works. The following is a list of wharves to which repairs were made by this Department during the past year, with the amount expended in each case:—

*Nova Scotia.*

Annapolis Royal.. . . .	\$48 73
Hampton.. . . .	14 00
Kingsport.. . . .	91 50
Little River.. . . .	20 06
Pubnico middle, W.. . . .	5 80
Westport.. . . .	32 00
White point.. . . .	33 76

*Quebec.*

Amherst.. . . .	13 72
Anse aux Gascons.. . . .	19 00
Grand river.. . . .	15 50
Mechins wharf.. . . .	8 00
Ste. Cecile du Bic.. . . .	6 00

*Ontario.*

Rosseau.. . . .	6 00
Tenby bay.. . . .	11 50

*New Brunswick.*

Caraquet.. . . .	\$15 00
Lamek.. . . .	22 00

*Prince Edward Island.*

Charlottetown.. . . .	8 80
Hickeys wharf.. . . .	23 25
Higgins shore, Victoria W.. . . .	2 97
Mount Stewart wharf.. . . .	2 10
North Cardigan.. . . .	4 00
Vernon river, N.. . . .	19 50

*Montreal District.*

Graham wharf.. . . .	21 10
Hudson.. . . .	49 00
L'Orignal.. . . .	12 00
Ste. Anne de Bellevue.. . . .	14 75

*British Columbia.*

Sidney.. . . .	39 70
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Under the heading of office work allusion has been made to the extensive undertaking of securing and recording titles to the sites of all public wharves, numbering about 1,000. A great deal of work remains to be done before our records are moderately accurate up to date.

#### ICE BREAKING.

1. The Canadian Towing and Wrecking Company, Limited, of Port Arthur, contracted with the department to keep the harbours of Port Arthur, Fort William and West Fort William open for navigation until December 7, 1914, and to open those harbours in the spring of 1915, in time to permit upward bound vessels to enter the harbours as soon as the Sault Ste. Marie canal should be open for navigation. The contract is for three years, at \$30,000 per annum, and the work continues to be carried out in a way that gives entire satisfaction to the shipping interests.

2. The contract with S. Shipman, of Sault Ste. Marie, Ont., to keep free from ice the channel between Kensington point, on the north shore of St. Joseph channel, and a convenient landing on St. Joseph island or Campement d'Ours island, was renewed for another year, the work beginning in the autumn of 1914 and continuing until the ice had formed to sufficient thickness to permit teams of horses to cross in safety. The work also included the breaking of a channel in the spring before the ice became dangerous, and keeping the channel free until general navigation was resumed. The cost for the year is \$500.

3. The usual contribution of \$300 was made towards keeping open the St. Croix river in the vicinity of St. Stephen. The annual cost of this work is in the neighbourhood of \$1,000 and the department of late years has contributed \$300 a year towards this, the remainder being made up locally.

#### TELEGRAPH OR TELEPHONE CONNECTIONS WITH LIGHT STATIONS.

The department has frequently required information respecting the connection of our principal lightstations, etc., with commercial telegraph or telephone lines, and as it was found that details were not readily available, work having been done at different times by different departments or by private enterprise so that no single central authority was responsible, an attempt has been made to prepare a list of these connections, and the result is appended in tabular form as enclosure B to this report.

It is hoped that another year the list may be made more correct and complete, as the information at present available has not proved entirely satisfactory.

The policy of the department has been to restrict telephonic connections to stations of prime importance, where shipping interests would be benefited by the prompt transmission of ships' movements, or where shipwreck attended by danger to life was to be apprehended, and where early notice of a disaster might bring aid more promptly.

Respectfully submitted,

WM. P. ANDERSON, M. Inst. C.E.,

*Chief Engineer.*

Chief Engineer's Office,

Department of Marine,

Ottawa, April 1, 1915.



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DETAILED REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT OF MARINE ON CONSTRUCTION, ESTABLISHMENT AND IMPROVEMENT OF LIGHTHOUSES AND OTHER AIDS TO NAVIGATION, UP TO MARCH 31, 1915.

To the Deputy Minister,  
Department of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit a detailed report on work done in the construction and establishment of aids to navigation, for the twelve months ending March 31, 1915.

This statement is put in tabular form, and includes every item of expenditure incurred during the year against the vote of one million dollars for construction, etc., but no work done chargeable to other votes.

NOVA SCOTIA.

NEW AIDS TO NAVIGATION.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Five islands.....	Accounts outstanding from last year in connection with the erection of a combined wooden lighthouse and dwelling.	.....	.....	207 04
Hardwood isl'nd	Erection of a 23-foot pole with shed at base, also a shelter shed.	Day labour.....	E. J. Geizer.....	573 00
	Provision of a 7th order lens lantern.	Prescott stores.....	.....	
Kaulbach island	Erection of two wooden range light towers.	Contract.....	N. J. Robinson, Chester, N.S.	975 00
	Inspection, provision and installation of a 5th order lens for front light and catoptric apparatus for the back.	.....	.....	477 65
Northeast arm..	Erection of 18-foot pole light with shed at base, and installation of 7th order dioptric lens lantern.	Day labour.....	E. J. Geizer.....	130 46
Port Felix.....	Provision of hand fog horn.....	.....	.....	
Salvages.....	Erection of fog alarm building, dwelling, outbuildings, provision and erection of class "E" duplicate plant and type "G" diaphone.	Day labour.....	J. L. Colter.....	12,058 46
Watt point.....	Erection of 18-foot pole light, with shed at base, and installation of 7th order lens lantern.	" .....	E. J. Geizer.....	212 34

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Bald rock.....	Erection of iron spindle with slatwork drum.	Day labour.....	D. Thuerber.....	145 10
Battery point....	Illuminating apparatus improved by the installation of a 4th order lens.	" .....	E. J. Geizer.....	
Beaver harbour.	Erection of a combined wooden lighthouse and dwelling, and also a boathouse.	Contract.....	O. J. O'Brien, Noel, N.S.	4,340 00
	Provision and erection of a 5th order dioptric lens.	Day labour.....	E. J. Geizer.....	1,216 54



NOVA SCOTIA—Continued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Boars head.....	Light changed from flashing white to flashing red. Cost of fog alarm machinery. Sundry small accounts outstanding from last year in connection with the erection of new fog alarm building.	Day Labour.... Contract..... ..... .....	F. Ruggles, lightkeeper. Canadian Fog Signal Co. ..... .....	 2,191 00 57 14
Brier island.....	Repairs to tower improvement of lantern and apparatus. (Will be completed next year.)	Day labour.....	J. L. Colter.....	104 74
Burntcoat ....	Construction of a shed. Completion of work of the erection of a combined wooden lighthouse and dwelling started last year.	“ ..... Contract.....	G. Cochrane..... O. J. O'Brien, Noel, N.S.	125 00 ~
	Provision and erection of a 4th order lens:	Day labour.....	E. J. Geizer.....	118 58
Cape Fourchu...	Installation of boiler in fog alarm building.	“ ..... .....	.....	656 91
Cheticamp.....	Erection of fence around light-house lots.	Contract.....	L. J. Aucoin.....	25 00
Eastern harbour.	Range lights moved into the changed axis of dredged channel.	“ ..... .....	L. J. Aucoin.....	350 00
	Purchase of sites, legal expenses, etc.	.....	.....	323 72
Coffin island.....	Erection of a 40-foot reinforced concrete tower.	“ ..... .....	D. C. Mulhall, Liverpool, N.S. E. J. Geizer.....	12,080 00 1,063 50
	Installation of single flash long focus reflector, with 35 mm. burner, erection of 8-foot cast iron lantern, inspection and incidental expenses.	Day labour.....	.....	
Dartmouth.....	Improvement of departmental property, acquisition of land, water, heating, electric and telephone systems to be established, repairs to wharf, blacksmith, machine, apparatus, carpenter shop and offices. (Work will be completed next year.)	“ ..... .....	Messrs. Colter, Geizer and Publicover.	5,183 23
Doctor island...	Day beacon increased in size.	“ ..... .....	P. C. Johnson..... E. R. Morrison.....	 1,395 62
Flat point.....	Installation of Robb-Mumford boiler.	“ ..... .....	.....	
Flint island.....	Repairs to fog alarm engine.	“ ..... .....	P. C. Johnson..... Lightkeeper.....	837 84
Glace bay.....	Construction of two slip ways.	“ ..... .....	.....	
Guion island.....	Repairs to breakwater.	“ ..... .....	E. Farrell..... T. H. Phillips.....	633 44 1,053 92
	Illuminating apparatus improved by the installation of a double flash long focus reflector.	.....	.....	
Halifax lightship	Outstanding accounts and other expenses in connection with the construction of lightship.	.....	.....	10,092 59
Herring cove....	Illuminating apparatus improved by the installation of a 5th order dioptric lens.	.....	.....	282 56
Ile Haute.....	Installation of triple-flash long focus reflector with 35 mm. burner.	“ ..... .....	T. H. Phillips.....	74 58
Lahave.....	Provision and installation of a 4th order dioptric lens.	“ ..... .....	E. J. Geizer.....	
Medway head...	Provision and installation of a 4th order dioptric lens.	Day labour.....	E. J. Geizer.....	



## SESSIONAL PAPER No. 21

NOVA SCOTIA—*Concluded.*CHANGES AND IMPROVEMENTS IN EXISTING AIDS—*Concluded.*

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Parrsboro.....	Construction of roadway.....	Day Labour.....	W. H. McCurdy.....	260 34
Point Prim.....	Installation of long focus single flash reflector with 55 mm. burner.	".....	E. J. Geizer.....	
Pope harbour...	Provision and installation of a 4th order dioptric lens.	".....	E. R. Morrison.....	
Port Mouton....	Provision and installation of a 4th order dioptric lens.	".....	E. J. Geizer.....	
Roseway cape...	Erection of wooden fog alarm building, provision and installation of class "D" duplicate plant and type "F" diaphone..	".....	J. Montgomery..... S. K. Greenwood.	10,308 85
St. Mary, cape..	Erection of fog alarm building dwelling, oil store and out-buildings.	Contract.....	S. Robichaud, Meteghan Centre, N.S.	1,650 00
	Inspection, provision and installation of class "B" duplicate plant and type "B" diaphone..	Day labour.....	J. Shiers.....	2,550 26
St. Paul island..	Erection of wooden double dwelling for superintendent and staff.	Contract.....	S. Robichaud, Meteghan Centre, N.S.	8,690 00
	Inspection and incidental expenses.	.....	.....	110 94
Sand spit.....	Provision and installation of a 4th order dioptric lens.	Day labour.....	E. J. Geizer.....	
Scatari.....	Provision and installation of triple flash long focus reflector, with 55 mm. burner.	.....	.....	969 13
Seal island.....	Installation and provision of duplicate boiler.	Day labour.....	T. H. Phillips.....	
Sheet harbour...	Purchase of sites of range lights, searching title, etc.	.....	.....	70 74
Sydney, south bar.	Repairs to crib foundation.....	".....	D. H. McLean.....	1,056 10
Three Top island.	Provision and installation of 4th order dioptric lens. Will be completed next year.	".....	E. R. Morrison.....	11 70
West Ironbound.	Outstanding accounts in connection with the installation of quadruple flashing long focus reflector and 35 mm. burner.	.....	.....	68 03
Miscellaneous expenses.	Materials, etc., in connection with the establishment of buoys, beacons, submarine bells, etc.	.....	.....	14,188 31
	Travelling expenses of officials, telegrams, salaries of foremen, etc.	.....	.....	4,386 68
	Extensive repairs and maintenance of C. G. S. <i>Aranmore</i> .	.....	.....	25,642 95
	Upkeep and maintenance of C. G. S. <i>Rouville</i> .	.....	.....	3,949 07
	Total expenditure for Nova Scotia.	.....	.....	130,898 06



6 GEORGE V, A. 1916

## NEW BRUNSWICK.

## NEW AIDS TO NAVIGATION.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Bayswater.....	Outstanding accounts in connection with the erection of wooden lighthouse tower.	.....	.....	169 60
Clifton.....	Erection of pole light with shed at base. Apparatus, inspection and incidental expenses.	Contract.....	R. Waddell.....	126 00
Goodfellow bar.	Erection of range pole lights with sheds at base, and headlight reflector lanterns. Work started last year.	Day labour.....	G. N. Breen.....	462 45
Grande Anse....	Erection of 17 ft. wooden lighthouse tower. Inspection, provision and installation of 6th order dioptric lens.	Contract.....	The Geo. Eddy Co., Bathurst, N.B.	477 65
Grandigue.....	Erection of 20-ft. pole exhibiting a light from an anchor lens lantern, with shed at base.	Day labour.....	J. Kelly.....	263 42
Lorneville.....	Erection of 16-ft. pole exhibiting a light from a lens lantern, with shed at base.	Contract.....	S. Ferguson.....	221 56
McColgan point.	Outstanding accounts in connection with construction of lighthouse erected last year.	.....	.....	261 76
Maisonnette.....	Erection of a combined wooden dwelling and lighthouse and oil shed. Inspection, provision and installation of lantern and catoptric apparatus. Will be completed next year.	Contract.....	S. Gammon, Bathurst, N.B., contract price \$2,700.	2,576 40
Martin head.....	Erection of a combined wooden dwelling and lighthouse, also boathouse and oil shed. Inspection, provision and erection of 4th order dioptric lens and 25 mm. burner.	Contract.....	F. H. Carson, West Quaco, N.B.	3,650 00
St. John harbour range.	Erection of wooden tower for front light and steel skeleton tower for back light with catoptric reflectors and incandescent electric lamps	Day labour.....	Geo. N. Breen.....	806 97
Shediac wharf...	Erection of range lights, a front pole light with shed at base and headlight lantern, back an enclosed wooden tower and catoptric apparatus.	Day labour.....	Geo. N. Breen.....	1,162 27

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Bathurst.....	Moving front light tower to new site.	Day labour.....	G. N. Breen.....	339 38
Cassie point.....	Provision and installation of flashing long focus reflector (Will be completed next year)	Day labour.....	.....	766 08
Chance harbour	Erection of 18-ft. wooden lighthouse tower (will be completed next year).	Day labour.....	.....	236 40
Cherry island...	Installation of better fog bell....	Day labour.....	D. J. Gallagher.....	157 63
Chockfish.....	Purchase of site, etc.....	.....	.....	88 80
Dalhousie.....	Expenses re purchase of site.....	.....	.....	109 10
Dipper harbour.	Erection of 20-foot combined wooden lighthouse and dwelling (work will be completed next year)	Contract.....	D. Mawhinney, Maces' bay.	1,592 50



## SESSIONAL PAPER No. 21

## NEW BRUNSWICK—Continued.

## CHANGES AND IMPROVEMENTS TO EXISTING AIDS—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Escuminac.....	Installation of an electric lighting plant.	Day labour.....	F. J. Lewis.....	25 49
Gannet rock.....	Repairs to landing.....	Day labour.....	J. Ganong.....	1,194 82
	Completion of work of general repairs started last year.	Day labour.....	J. Ganong.....	
Grandon.....	Purchase of sites, etc.....			283 36
Green head.....	Hand fog horn replaced by mechanical fog bell.....	Day labour.....	J. Kelly (Inspector of lights).	205 61
Half Tide rock..	Erection of spindle.....			42 81
Head harbour..	Erection of a wooden fog alarm building and oil shed.	Contract.....	J. M. Johnston, Campbell (Contract price \$2,952.65),	2,918 10
	Inspection, provision and installation of class C diaphone and duplicate plant (Will be completed next year).			
Hopewell cape...	Erection of small lighthouse tower.	Day labour.....	J. J. Christopher.....	30 48
Long Eddy point	Installation of an electric lighting plant.	Day labour.....	C. Tatten.....	10 00
Lower Neguac...	Purchase of site with attendant expenses			155 00
Lurcher lightship	Installation of wireless apparatus			1,930 00
Machias Seal island.	Completion of work in connection with extensive improvements started last year.	Day labour.....	D. Wells.....	14,612 36
	Erection of 44-ft. reinforced concrete tower, provision and installation of illuminating apparatus (work will be completed next year).	Day labour.....	J. Ganong.....	
Musquash.....	Installation of long focus quadruple flash reflector.	Day labour.....	D. J. Gallagher.....	
North Beach....	Erection of shelter shed.....	Day labour.....		
Outhouse point..	Expenses re purchase of site, etc.			177 16
Partridge island	Installation of an electric lighting plant..	Day labour.....	F. Lewis.....	2,576 83
	Capacity of reservoir increased..	Day labour.....	F. Nice.....	
Preston beach...	Installation of a long focus single flash reflector.	Day labour.....	D. J. Gallagher.....	
Quaco W. head.	Installation of long focus single flash reflector and 35 m.m. burner.	Day labour.....	D. J. Gallagher.....	
Richibucto head	Installation of long focus quadruple flash reflector and 35 m.m. burner.	Day labour.....	D. J. Gallagher.....	366 92
St. John Marine depot.	Construction of partition in No. 7 shed...	Day labour.....	Geo. N. Breen.....	76,706 73
	Repairs to water pipes.....	Day labour.....	F. J. Lewis.....	
	Continuation of construction of pile and concrete wharf and dredging.	Contract.....	F. L. Boone.....	
Shampers wharf	Expenses re purchase of site, etc.			23 10
Sisters.....	Sisters rocks blasted out by dynamite.	Day labour.....	Geo. N. Breen.....	25 00
Spencer cape.....	Illuminating apparatus improved by the installation of a flashing long focus reflector with 35 m.m. burner.	Day labour.....	D. J. Gallagher.....	965 09
	Changing type "E" diaphone to modern type "F"		F. J. Lewis.....	
Swallowtail.....	Erection of wooden building and installation of mechanical fog bell.	Day labour.....	G. N. Breen.....	973 72



NEW BRUNSWICK—*Concluded.*

CHANGES AND IMPROVEMENTS TO EXISTING AIDS—*Concluded.*

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Miscellaneous ex-penses.	Materials, etc., in connection with the establishment of buoys, beacons, etc.	.....	.....	10,037 25
	Travelling expenses of local officers, salaries of erectors, telegrams, etc.	.....	.....	10,009 01
	Total expenditure for New Brunswick.	.....	.....	136,911 77

PRINCE EDWARD ISLAND.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Bear cape.....	Illuminating apparatus improved by the installation of a single flash long focus reflector (work completed last year).	Day labour.....	M. Walsh.....	38 00
Georgetown.....	Repairs to protection work at front light..	Day labour.....	A. Lord.....	67 07
	Installation of new 24" reflector	Day labour.....	.....	.....
New London....	Building room in warehouse, provision of stove..	Day labour.....	G. H. Gaudin.....	.....
	Illuminating apparatus improved by the installation of a 4th order dioptric lens.	Day labour.....	M. Walsh.....	16 51
North point.....	Illuminating apparatus changed from a revolving catoptric light to a flashing catoptric light.	Day labour.....	M. Walsh.....	.....
Northport.....	Construction of line fence.....	Day labour.....	Crew of C.G.S. <i>Brant</i> ...	.....
Shipwreck point	Expenses re purchase of site, etc.	.....	.....	31 45
Summerside.....	Construction of fence.....	Day labour.....	Lightkeeper.....	21 25
West point.....	Illuminating apparatus improved by the installation of triple flash long focus reflector..	Day labour.....	M. Walsh.....	.....
Miscellaneous ex-penses.	Travelling and incidental ex-penses.	.....	.....	1,338 24
	Materials in connection with the establishment of buoys, beacons, etc.	.....	.....	2,338 44
	Total expenditure for Prince Edward Island.	.....	.....	3,850 96

QUEBEC.

NEW AIDS TO NAVIGATION.

Grand Bergeronne	Expenses re purchase of site, etc.	.....	.....	247 32
Maria wharf	Erection of 20-foot wooden enclosed tower.	Contract.....	L. Le Blanc, Carleton, P.Q.	490 00
	Apparatus, inspection, and incidental expenses.	.....	.....	223 71
Natashkwan	Completion of work on new light station, begun last year.	Day labour. .	C. Carbonneau.....	3,297 35
Little Natashkwan	Erection of pole range lights with Piper headlight lanterns.	"	C. Carbonneau.....	.....
Price Monument.	Erection of range pole lights.... (Will be completed next year.)	Contract.....	J. Saulnier and P. Morissette, Chicoutimi.	552 70
River St. John..	Preliminary expenses in connection with the establishment of range lights.	.....	.....	288 16



SESSIONAL PAPER No. 21

## QUEBEC—Continued.

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Anguille, cape...	Dwelling re-lined and drainage improved.	Day labour ....	Lightkeeper.....	108 98
Bagot bluff.....	Provision and installation of double flash, long focus reflector and 55 mm. burner.	" ....	F. E. Cote.....	2,351 05
Barachois de Malbaie.	Provision and installation of anchor lantern and hoisting gear..	" ....	F. E. Cote.....	230 97
Bauld cape.....	Provision of second order dioptric lens.	.....	.....	5,000 00
Belle isle, S.W..	Erection of combined stable and store house.	" ....	J. Richard.....	752 45
Cloridorme.....	Back light moved 40 ft. westward.	" ....	Crew of C.G.S. <i>Montmagny</i> .	5 20
Cocoachoo.....	Moving, painting beacon, making new slats. and new bolts for steel tripod.	" ....	" "	76 55
d'Espoir, cape...	Provision and installation of quadruple flash, long focus reflector and 35 mm. burner.	" ....	R. L. Kelso.....	1,266 94
	Repairs to reservoir and machinery.	" ....	.....	
Eskimo point...	Erection of shelter sheds.....	" ....	W. F. Boudreault.....	139 99
	Provision and installation of 2 Piper headlight lanterns.	" ....	J. U. Dubé.....	
Flower island...	Provision of triple flash long focus reflector.	" ....	.....	1,208 51
Grand entry.....	Repairs to pier.	" ....	A. Turbide.....	225 00
Grindstone isld..	Provision and erection of wharf light.	" ....	Lightkeeper.....	160 14
Ile aux Beliers...	Purchase of site.	.....	.....	50 00
Ile Verte.....	Erection of day beacon on front pole and back pole made higher	" ....	J. U. Dubé.....	98 80
Les Mechins.....	Erection of pole light with shed at base, and Chance anchor lantern.	" ....	R. L. Kelso.....	343 59
Mistook.....	Erection of shelter shed.	Contract.....	J. A. Larouche.....	178 00
<i>Montmagny</i> , C. G. S.	Maintenance and upkeep of steamer.	.....	.....	40,165 02
Paspebiac.....	Provision and installation of double flash catoptric apparatus.	Day labour ....	R. L. Kelso.....	1,195 64
Point Amour....	Steam fog alarm plant replaced by an oil plant.	Contract.....	E. Lavergne.....	1,544 63
Pointe à Basile..	Provision and installation of long focus reflectors and 25 mm. and 35 mm. burners.....	Day labour ....	F. Parent.....	1,455 39
	Erection of shelter shed.....	" ....	T. H. Brewer.....	
Pointe aux Trembles en bas.	Erection of stairways and partition.	Contract.....	B. Bachette.....	555 73
Pointe des Monts	Provision and installation of triple-flash long focus reflector, new lantern. Rebuilding top of tower.	Day labour ....	J. U. Dubé.....	2,041 51
<i>Rouville</i> , C.G.S..	Maintenance and upkeep of str..	.....	.....	21,027 19
Salmon, cape....	Provision and installation of triple-flash reflector.	" ....	F. Parent.....	1,220 24
Sandy beach....	Provision and installation of 6th order lens.	" ....	J. U. Dubé.....	417 63
	Stone ballast placed in pier.....	Contract.....	N. Ascah. (Contract price, \$60.)	
St. Laurent.....	Provision and erection of 2-section steel skeleton tower, 8 ft. iron lantern, 4th order dioptric lens with 35 mm. burner.	Day labour ....	F. E. Coté.....	4,310 06



QUEBEC—Concluded.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Concluded.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Southwest point, Anticosti.....	Provision and installation of single flash, long focus reflector with 55 mm. burner.	Day Labour....	F. Parent.....	
Stone Pillar.....	Erection of new dwelling to replace one destroyed by fire.	Contract.....	J. E. Fortin, St. Jean, Port Joli, P.Q.	4,444 44
	Inspection and incidental expenses			
	Provision and installation of new lantern and single flash, long focus reflector.	Day labour ....	O. Tremblay.....	3,383 21
	To replace those destroyed by fire..			
Upper Traverse.	Repairs to pier.....	" .....	J. Blanchette.....	9,447 73
Miscellaneous ex- penses.	Materials, etc., in connection with the establishment of buoys, beacons, submarine bells, etc. Expenses incurred by the workshops, including wages, material, power, etc., the salaries of erectors, wages and travelling expenses of local officers, telegrams, and general upkeep of agency.			97,984 83
	Total expenditure for Quebec .....			206,488 66

MONTREAL DISTRICT.

NEW AIDS TO NAVIGATION.

Berthier channel	Construction of float light and installation of pressed lens lantern.	.....	.....	42 83
Dixie.....	Erection of range lights (Work will be completed next year).	Day labour....	Capt. J. D. Weir.....	6,692 05
L'Original.....	Erection of two wooden light house towers, 23 ft. and 20 ft. for front and back light respectively.	Contract.....	W. Larocque, Hawkesbury, Ont. Contract price, \$1,900.	971 44
	Inspection, provision and installation of two 6th order dioptric lenses.			
Maskinonge ....	Erection of unlighted beacons to form a range and rebuilding beacon "A".	Day labour....	P. Beauchemin.....	43 59
St. Francis river	Erection of 5 pairs of day beacons	" .....	" .....	384 80
Yamaska river..	Erection of day beacons.	" .....	" .....	176 64

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Black point.....	Erection of 15 ft. wooden light-house tower and installation of 5th order dioptric lens.	Contract.....	W. H. Davis and J. D. Cowan, Mansonville, Que	371 00
Chateauguay river.....	Erection of slatted day beacon.	Day labour....	Thos. Weir, r.....	79 99
Contreccœur-Verchères.....	Repairs to front light pier.....	" .....	J. B. Gervais.....	280 00
Grondines upper.	Provision and installation of 25" long focus reflector.	" .....	R. H. Goulet.....	



SESSIONAL PAPER No. 21

MONTREAL DISTRICT—*Continued.*CHANGES AND IMPROVEMENTS TO EXISTING AIDS—*Continued.*

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Ile à la Pierre...	Removal of abandoned light-house.	Day Labour....	A. Martin.....	297 88
Ile Lebel.....	Outstanding accounts incurred last year in erecting range lights.	.....	.....	57 26
Ile Perrot.....	Provision and installation of locomotive headlight reflector lantern.	Day labour.....	Thos. Weir.....	203 29
Ile Ronde.....	Provision and installation of 30'' long focus reflector, pedestal and 35 mm. burner.	".....	R. H. Goulet.....	
Ile Ste Thérèse.	Expenses in connection with acquisition of site.	.....	.....	61 64
Lachine.....	Provision and installation of 25'' and 27'' reflectors for the front and back light respectively...	Day labour.....	R. H. Goulet.....	
Lacolle.....	Expenses <i>re</i> site, etc.....	.....	.....	76 50
Lavaltrie.....	Repairs to back lighthouse foundation, and provision and erection of steel skeleton tower, 25'' long focus reflector with duplex burner.	Day labour.....	A. Martin.....	11,231 39
Leadmines.....	Erection of 15 ft. wooden light-house tower and installation of 5th order dioptric lens.	Contract.....	W. H. Davis and J. D. Cowan.	371 00
	Inspection, apparatus and incidental expenses.	.....	.....	59 36
Marcotte traverse.	Expenses <i>re</i> acquisition of site...	.....	.....	31 40
Melocheville....	Range lights rebuilt, one on new site, provision and erection of two 5½-foot octagonal iron lanterns, and two long focus reflectors.	Day labour.....	Thos. Weir.....	1,347 12
Molson island....	Erection of 15-foot wooden light-house tower, and installation of 5th order lens.	Contract.....	W. H. Davis and J. D. Cowan, Mansonville, P.Q.	371 00
Montreal agency	Repairs and fittings to boats used on construction work, pay and board of crews, including <i>Hosanna, Adelard, Alyha, Napoleon, Quebec, Sarah, and Margot..</i>	Day labour.....	A. Martin.....	11,154 48
	Materials, etc., in connection with establishment of beacons and buoys.	.....	.....	19,729 37
	Travelling expenses of officers, wages, salaries of temporary help, and general up keep of agency.	.....	.....	19,399 70
	Repairs to diving suit.....	.....	.....	
	Repairs to scows <i>Prescott and Lenore.</i>	Day labour.....	C. J. Hartley.....	
	Repairs to steel tug and hopper dredge, etc.	.....	.....	1,281 78
Mousseau range..	Erection of shelter shed.....	Day labour.....	A. Martin.....	96 26
Pointe à la Meule	Purchase of site, etc.....	.....	.....	102 05
Pointe aux Anglais.	Provision and installation of 10 inch holophote lens.	Day labour.....	J. D. Weir.....	2,629 05
	Repairs to pier.....	".....	J. McAllister.....	
Pointe au Citrouille.	Purchase of site, etc.....	.....	.....	408 25



MONTREAL DISTRICT—Concluded.

CHANGES AND IMPROVEMENTS TO EXISTING AIDS—Concluded.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Pointe du Lac...	Provision and installation of long focus reflectors and 25 mm. and 35 mm. burner.	Day labour.....	R. H. Goulet.....	
Ste. Anne de Bellevue.	Provision and installation of two Piper headlight lanterns.	" .....	Thos. Weir.....	21 05
St. Charles point	Purchase of site and expenses..	.....	.....	89 50
Verchères trav-erse.	Purchase of site, etc.....	.....	.....	55 10
Wadleigh point..	Erection of 15-foot wooden light-house tower and installation of 5th order lens.	Contract.....	W. H. Davis and J. D. Cowan, Mansonville, P.Q..	371 00
	Total expenditure in Mon-real agency.	.....	.....	78,487 77

ONTARIO.

NEW AIDS TO NAVIGATION.

Bay point. (Sarnia.)	Erection of pole with shed at base with lens lantern, illuminated by acetylene.	Day labour.....	Wm. Bray.....	1,082 04
Cobourg.	Unwatched pole light with Aga installation temporarily erected.	" .....	H. V. Anderson.....	516 41
	Concrete beacon to be erected next season.			
Devil Gap, Lake of the Woods.	Erection of two pole lights illuminated by electricity.	" .....	J. L. Cox.....	1,857 50
Hilton.	Provision of wharf lantern and erection of same.	" .....	Wharfinger.....	
Kingsville .....	Provision of hand fog horn.	.....	.....	
Limekiln cross-ing.	Provision and erection of 3 and 4 section steel skeleton towers for front and back range lights respectively, and installation of long focus reflectors.	Day labour.....	M. J. Egan.....	2,084 03
Livingstone channel.	Preliminary expenses, and advance on material for the erection of concrete lighthouse to be erected next year.	.....	.....	4,886 05
Main Duck isl'd.	Erection of 70-ft. reinforced concrete tower, double dwelling, boathouse, oil shed, wharf, boat landing, etc.	Contract.....	A. T. C. McMaster, Toronto.	13,644 22
	Inspection, provision of 10 ft. cast iron lantern, 3rd order dioptric lens and 55 mm. burner.			
Martin island.	Erection of pole range lights and headlight lanterns.	Day labour.....	W. H. Carson, District Engineer	214 94
North Saskatchewan river, Sask.	Establishment of guide posts to indicate water route from Prince Albert to Beaver lake.	" .....	Dept. of Public Works..	353 08
Port Burwell....	Completion of construction of concrete unwatched acetylene beacon and erection of boat-house.	" .....	M. J. Egan.....	2,442 99



SESSIONAL PAPER No. 21

ONTARIO—Concluded.

NEW AIDS TO NAVIGATION.—Concluded.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Slate island.	Erection of fog alarm building and oil shed.	Contract.....	J. O'Boyle & Co., "Soo" Ont.	5,323 95
	Provision and installation of class "C" duplicate plant, type "F" diaphone, oil tanks. Inspection and incidental expenses	Day labour....	J. Montgomery.....	664 90
Toronto, East Gap.	Provision and installation of long focus reflector, and lantern box, on steel tower owned by Hydro-Electric System to form back range light.	" .....	J. Montgomery.....	
Turning rock.	Provision of pressed lens lantern and moving lighthouse from Midland pt.	Contract.....	Geo. W. White.....	301 00
Victoria beach, Manitoba.	Erection of pole light.	Contract.....	E. E. Jardine.....	125 00
Wingfield basin..	Provision and installation of pressed lens lanterns to illuminate day beacons.	Day labour ....	Lightkeeper.....	
Winnipegosis. (Manitoba.)	Purchase of site and provision of illuminating apparatus to be erected next year.	.....	.....	550 00

CHANGE AND IMPROVEMENTS IN EXISTING AIDS.

Amherstburg.	Erection of iron fence on concrete foundation.	Day labour....	W. B. Lemont.....	443 91
	Provision of fence furnished by.	Contract.....	Dennis Wire and Iron Works Co., London, Ont.	640 00
Battle island.	Erection of standard fog alarm building, double dwelling, 30 ft. reinforced concrete tower, 8 ft. cast iron lantern, triple flash long focus reflector and 35 mm. burner. (Work will be completed next year.)	Day labour....	M. J. Egan, J. Montgomery.	12,173 54
Brebeuf.	Provision and installation of two 25" reflectors.	" .....	J. Fitzpatrick.....	3,308 72
	Reconstruction of back light by the erection of a 52 ft. steel skeleton tower and erection of two 8 ft. lanterns.	" .....	T. H. Brewer.....	
Brighton.	Temporary repairs to concrete pier.	" .....	H. V. Simpson.....	694 93
Cherry island.	Repairs to concrete pier.	" .....	M. J. Egan.....	
	Provision and installation of 6th order lens, and Blaugas installation.	" .....	T. Bruce.....	
Cole shoal.	Erection of boathouse and runway.	" .....	J. J. Lindsay.....	
Corunna.	Alterations to lantern, and illuminating apparatus improved by the installation of a 5th order lens.	" .....	Wm. Scott.....	86 38
Coteau landing.	Provision and installation of 7th order lens and Blaugas illuminant.	" .....	T. Bruce.....	
Cove island.	Breakwater protection to water pipe re-constructed.	" .....	W. J. Simpson.....	325 60
	Repairs to wharf.	" .....	W. J. Simpson....	



ONTARIO—*Continued.*CHANGES AND IMPROVEMENTS IN EXISTING AIDS—*Continued.*

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Fort Malden.	Range lights moved eastwardly into axis of completed channel.	Day Labour....	G. W. Bailey.....	501 37
Fort William.	Small lighthouse moved to better foundation.	" ....	S. G. Scagel, Sub-agent.	19 80
French river.	Rebuilding front range light tower and repairs to back tower.	" ....	Crew of 'C. G. S. Lambton'.	29 38
Gananoque narrows.	Erection of shelter shed, repairs to boathouse and keepers shelter.	" ....	J. J. Lindsay.....	
Gargantua.	Erection of shelter shed and repairs to tower.	" ....	C. Myron.....	115 12
Georgian bay.	Placing buoys and beacons between Penetanguishene and Parry Sound.	" ....	Crew of "C.G.S. Lambton".....	
Giants Tomb.	(Work started last year.) Provision and erection of lantern, long focus flashing reflector and 35 mm. burner.	" ....	T. H. Brewer.....	1,698 14
Goderich.	Provision and installation of long focus flashing reflector.	" ....	J. Haggarty.....	9,879 66
	Repairs to dwelling.	" ....	M. J. Egan.....	
	Putting in new ventilators.	" ....	W. B. Lemont.....	
	Installation of electric fog alarm plant in beacon on breakwater and beacon light improved.	" ....	H. V. Anderson.....	
Griffith island.	Protection to electric cable.	" ....	W. B. Lemont.....	
Jackfish bay.	Erection of boathouse.	" ....	W. S. Boyd.....	368 46
	Erection of combined boat and oil house.	" ....	B. Almos.....	255 48
Killarney, E.	Repairs to lighthouse.	" ....	Lightkeeper.....	431 91
Killarney, W.	Provision and installation of 5th order dioptric lens.	" ....	Lightkeeper.....	
Lambton, C.G.S.	Expenses in connection with the maintenance and upkeep of steamer used on construction work.			14,952 70
Leamington.....	Provision and installation of a 4th order dioptric lens.	Day labour....	F. H. C. Conover.....	
Lionhead.....	Lighthouse tower replaced on breakwater, having been previously displaced by storm.	" ....	W. B. Lemont.....	342 60
Long point West end....	Erection of boathouse.....	" ....	Lightkeeper.....	202 00
Lyal island.....	Repairs to lighthouse, moving boathouse and construction of slipway.	" ....	T. H. Brewer.....	1,759 18
McKie point.....	Provision and installation of 5th order lens.	" ....	J. Haggarty.....	
McNicoll.....	Placing slatwork as day mark on back range tower.	" ....	T. H. Brewer.....	127 91
Meaford.....	Installation of Aga gas system in beacon.	" ....	J. Fitzpatrick.....	1,747 51
Michipicoten island.	Construction of landing wharf....		Lightkeeper.....	153 10
Midland point...	Repairs to tower.	" ....	T. H. Brewer.....	29 01
Mississagi strait.	Construction of plank walk.....	" ....	W. Grant.....	98 15
Nine mile point.	Purchase of diaphone.....	Contract.....	Canadian Fog Signal Co.	1,301 93
Oakville.....	Provision and installation of 4th order dioptric lens.	Day labour....	S. Nieforth.....	
Otter head.....	Provision and installaton of long focus reflector.	" ....	J. Montgomery.....	1,169 11



SESSIONAL PAPER No. 21

## ONTARIO—Continued.

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ [cts.
Owen Sound ....	Provision and installation of long focus reflector. £ . . .	Day Labour....	J. Fitzpatrick.....	
Penetanguishine harbour.....	Provision and installation of long focus reflectors.	" .....	J. Fitzpatrick.....	122 91
Penetanguishene.	Provision and installation of 6th order dioptric lens and duplex lamp.	" .....	J. Fitzpatrick.....	
Peninsula harbour.	Provision and installation of long focus reflector and 35 mm. burner.	Day labour....	J. Montgomery.....	1,232 50
Peter rock.....	Erection of boathouse.....	Contract.....	Henderson Bros., Cobourg.	75 00
Pine tree.....	Back beacon rebuilt and repairs made to front beacon.	Day labour....	W. J. Bray.....	39 50
Port Colborne...	Installation of lens, occulting machine and 35mm. burner..	" .....	J. Haggarty.....	1,334 20
	Back light moved to new location and light improved by the installation of long focus reflector.	" .....	T. H. Brewer.....	
Port Dalhousie..	Erection of life line on east pier.	" .....	Superintending Engineer, Welland Canal.	132 93
Prescott Depot..	Re-arrangement of Dominion Lighthouse depot, viz.—overhauling and repairing main building, tearing down and removal of various old buildings on the site, general overhaul of the machinery, electric light and sprinkling system, building of oil store, establishment of tramway and telephone system, repairs to wharf, construction of fences and gates, installation of travelling crane, etc., etc.	" .....	F. P. Jennings, Engineer-in-charge	98,361 83
	Painting, improvements and repairs.	.....	.....	
	Overhauling Reliance clock.....	.....	.....	
	Repairs to brass foundry.....	Day labour....	J. J. Lindsay.....	60,484 17
	Material purchased for stock to be transferred and charged to the several lightstations, the pay of staff and up-keep of depot.	.....	.....	
Rainy river.....	Repairs to pier.....	" .....	Sub-agent, Kenora.....	641 36
Red Horse rock.	Repairs.....	" .....	J. J. Lindsay.....	
Red rock.....	Provision and installation of new occulting machine.	" .....	J. Fitzpatrick.....	864 66
Rondeau.....	Repairs to breakwater.....	" .....	W. B. Lemont, Engineer-in-charge	386 80
St. Anicet.....	Repairs to lighthouse.....	Day labour....	J. J. Lindsay.....	
Snake island.....	Repairs to pier.....	" .....	W. B. Lemont, Engineer-in-charge.	656 99
South river.....	Provision of pressed lens lantern and installation.	" .....	Lightkeeper.....	
Spectacle shoal..	Repairs to pier.....	" .....	J. J. Lindsay.....	
Strawberry island.	Erection of boathouse and repairs to lighthouse.	" .....	Wm. McKenzie.....	434 04



ONTARIO—Concluded.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Concluded.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Thames river...	Provision and installation of 6th order dioptric lens for front light.	Day labour ....	H. J. Cartier.....	183 77
	Repairs to walk and construction of oilstore.	" ....	T. H. Brewer.....	
Western islands..	Construction of cable way.....	" ....	J. Fitzpatrick.....	19 28
Whitby.....	Provision and installation of 5th order dioptric lens, and repairs to tower.	" ....	W. B. Lemont, Engineer-in-charge.....	103 92
Miscellaneous expenses.....	Materials, etc., in connection with the establishment of buoys and beacons.	.....	.....	16,002 74
	Travelling expenses of officers, salaries and expenses of temporary help, erectors, etc.	.....	.....	12,651 68
	Total expenses in Ontario.....	.....	.....	280,630 02

BRITISH COLUMBIA.

NEW AIDS TO NAVIGATION.

Addenbrooke island.	Erection of combined lighthouse and dwelling boathouse and oil shed, lantern and 4th order dioptric apparatus.	Day labour.....	D. McLean.....	2,632 49
	Erection of mechanical fog bell..	" ....	L. Cullison.....	
	Improvement to chimney in lighthouse.	" ....	W. H. P. Trowsdale....	
Alberni canal....	Erection of two day beacons one at First and other at Second narrows.	Contract.....	R. H. Wood, Alberni..	349 94
Carr rock.....	Erection of post light.....	.....	.....	229 51
Comox bar.....	Purchase of site, etc.....	.....	.....	167 35
Dillon rock.....	Erection of unlighted concrete beacon.	Day labour.....	Crew of C.G.S. Quadra	62 07
Fort point.....	Erection of day beacon.....	" ....	Crew of C.G.S. Estevan	
Frasermouth....	Erection of two small skeleton towers and four pole lights and moving two pole lights to new location to form four sets of range lights at mouth of Fraser river and provision of Wigham lamps.	" ....	District Engineer, Dept. Public Works.....	2,107 37
Wingdam range)				
Northsiderange)				
Garry point....)				
Kingcombe point	Erection of unwatched acetylene beacon.	" ....	Crew of C.G.S. Leebro	1,823 06
Knox point.....	Construction of dolphin and electric light installation.	.....	.....	175 47
Kootenay lake..	Erection of 6 five-pile dolphin beacon lights on west arm of Kootenay lake.	" ....	District Engineer, Public Works Dept.....	
Lake Laberge...	Provision of two Aga gas installations for the upper and lower end of lake (will be completed next year).	.....	.....	1,345 00
Lower Arrow lake.	Erection of 5-pile beacon light...	Day labour.....	District Engineer, Public Works Dept.	400 00
Masterman island.	Erection of unwatched acetylene beacon.	" ....	Crew of C.G.S. Estevan	11 00
Myrtle point....	Erection of concrete beacon.....	" ....	W. H. P. Trowsdale....	88 10



## SESSIONAL PAPER No. 21

## BRITISH COLUMBIA—Continued.

## NEW AIDS TO NAVIGATION—Concluded.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Noble islets....	Beacon moved from Crane islet to Nobel islets.	Day labour.....	Crew of C.G.S. Estevan	18 80
Norris rock.....	Erection of concrete beacon.....	" .....	W. H. P. Trowsdale....	88 10
Okisollo rapids.	Erection of three concrete day beacons.	" .....	W. H. P. Trowsdale....	292 98
Pender harbour	Erection of concrete day beacon	" .....	Crew of C.G.S. Estevan	
Rebecca rock...	Erection of unwatched acetylene beacon.	" .....	Crew of C.G.S. Estevan	582 47
Rocky pass.....	Erection of wooden day beacon on concrete base	" .....	Crew of C.G.S. Leebro	
St. Jose islets...	Erection of unwatched acetylene beacon.	" .....	Crew of C.G.S. Quadra	1,551 11
Salmon arm.....	Wharf lighted by electricity.....	Contract.....	W. F. Buchan.....	396 60
Scarlett point...	Fog alarm plant and erection of building to be carried out next year.	.....	.....	462 25
Shark spit.....	Erection of stake light.....	Day labour.....	W. H. P. Trowsdale....	82 39
Squally point...	Erection of pole light with shed at base.	.....	.....	229 51
White rocks.....	Erection of unwatched acetylene beacon.	Day labour.....	Crew of S.S. Leebro....	1,978 68

## CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Amphritite point	Erection of reinforced concrete tower, 8-ft. cast iron lantern, provision and installation of a 4th order dioptric lens and 25 mm. burner.	Day labour.....	H. L. Robertson.....	5,166 77
Bonila island....	Preliminary expenses in connection with the erection of new lighthouse, etc..	.....	.....	254 38
Brockton point..	Installation of 6-ft. cast iron lantern..	.....	.....	4,859 41
Burnaby shoal..	Erection of platform, and steel tripod, resting on piles and installation of electric light and electric fog bell.	Contract.....	Vancouver Pile Driving & Contracting Co., Vancouver, B.C.....	565 90
	Inspection and provision of bell and apparatus.	.....	.....	561 08
Esquimalt.....	Erection of a carbide shed.....	.....	.....	92 29
First Narrows..	Erection of two dolphins.....	Contract.....	Vancouver Pile Driving & Contracting Co., Vancouver, B.C.	115 00
	Inspection and incidental expenses.	.....	.....	15 65
	Provision of screen for occulting machine..	.....	.....	
	Protection work and provision for living accommodation.....	Contract.....	J. W. Scott, Vancouver	2,744 00
Fisgard.....	Illuminating apparatus improved by installation of 4th order dioptric lens.	Day labour.....	L. Cullison.....	224 96
Gallows point...	Construction of new base and repairs to fog alarm building..	Contract.....	Price & Carrigan.....	390 00
Georgy point....	Erection of slatwork daymark...	Day labour.....	Crew of C.G.S. Estevan	
Kaslo.....	Light increased in power and construction of dolphin.....	Contract.....	Supervised by Dist Eng. Public Works Dept.	833 67



BRITISH COLUMBIA—Concluded.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Concluded.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Langara.....	Installation of a derrick.....	Day labour.....	Crew of C.G.S. Estevan	318 63
Lennard island..	Steam fog alarm plant replaced by Class "D" duplicate plant	" .....	W. H. Peters.....	5,092 89
	Repairs to tramway, dwelling house and foundation of oil shed.			
Pine island.....	Intsallation of new revolving gear in illuminating apparatus.	" .....	L. Cullison.....	2,977 18
	Provision and installation of a 4th order dioptric lens.....			
Prince Rupert.	Repairs and improvements to agency.	Day labour ....	A. H. Johnstone.....	3,566 94
	Repairs to wharf.	" .....	Geo. Wynne.....	
	Provision of living accommodation for employees.	" .....	W. H. Cook.....	
Race rocks.	Repairs to illuminating apparatus	" .....	L. Cullison.....	79 58
Senanus island.	Purchase of site.			100 00
Sidney.	Erection of 400 feet electric line and poles and installation of electric light on end of wharf.	Contract.....	W. R. Smith, Sidney....	62 30
	Provision of apparatus, installation, and incidental expenses.			476 41
Sisters.	New revolving gear installed.	Day labour.....	Lightkeeper.....	19 50
Triangle island.	Repairs to dwelling, construction of oil shed, provision and installation of gasoline engine.	Day labour.....	A. W. R. Wilby, District engineer.....	2,077 55
Victoria	Construction of pile and concrete wharf and fill for new depot.	Contract.....	J. H. Parks, C. Tupper, and G. H. Kirkpatrick (Contract price \$20,450)	25,370 65
	Inspection and incidental expenses.			
Miscellaneous expenses.	Materials, etc., in connection with the establishment of buoys, beacons, and submarine bells.			6,345 63
	Salaries of foremen, travelling expenses of local officers, etc.			5,064 95
	Total expenditure in British Columbia.			79,705 57

HUDSON BAY.

Hudson strait and bay.	Erection of ten Aga lighted beacons, including cost of transportation and other incidental expenses.....	Day labour.....	E. E. Clawson, Engineer in charge.....	68,796 34
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HEADQUARTERS.

Miscellaneous expenses.	Including travelling expenses of officers, blue print work, unforeseen expenses, photographic work, etc.....			6,789 87
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SESSIONAL PAPER No. 21

## RECAPITULATION BY PROVINCES.

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	\$	cts.
Nova Scotia.....	130,898	06
New Brunswick.....	136,911	77
Prince Edward Island.....	3,850	96
Quebec District.....	206,488	66
Montreal District.....	78,487	77
Ontario and Northwest.....	280,630	02
British Columbia.....	79,705	57
Hudson Bay.....	68,796	34
Headquarters.....	6,789	87
Grand total expended.....	992,509	02

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Enclosure B.

DETAILS of Light Stations and other Aids to Navigation in Canada,

Station.	Connected with	Length in Miles.	Description.	Constructed by	Year.
Gannet Rock, N.B.....	Seal Cove.....	15	Phone.....	Govt. Tel. Service, P.W.D..	1891
Southwest head, Grand Manan, N.B.....	" .....	5	" .....	" .....	1893
Whitehead ledges life- saving station....	" .....	18	" .....	" .....	1910
Big Duck island fog alarm	" .....		" .....		1910
Swallowtail, N.B.....	Flaggs Cove.....	1 $\frac{1}{4}$	" .....	Govt. Tel. Service, P.W.D.	1895
Point Lepreau.....					
Tiner point, N.B.....					
Partridge Island, N.B....	St. John, N.B....	2	Phone cable...	Govt. Tel. Service, P.W.D.	1903
Quaco, N.B.....	St. Martins.....	2 $\frac{1}{4}$	Phone.....	Marine & Fisheries.....	1897
Cape d'Or fog signal, N.S.	Commercial Tel. Co's lines at Parrsboro.	25	Phone.....	N.S. Telephone Co.....	1907
Point Prim, N.S.....	Digby, N.S.....		" .....	N.S. Telephone Co.....	
Brier island, N.S.....					
Cape Fourchu, N.S.....	Yarmouth.....		Phone.....	N.S. Telephone Co.....	
Seal island, N.S.....	Clarks Harbour..	18	Phone cable..	Govt. Tel. Service P.W.D.,	1914
Cape Sable, N.S.....	Barrington.....	17 $\frac{3}{4}$	Phone.....	" .....	1897
Salvages fog alarm, N.S..			" .....	" .....	
Fort point, N.S.....	Liverpool.....		" .....	Private enterprise.....	
Coffin island, N.S.....			" .....	" .....	
Sambro island, N.S.....	Chebucto head....	5 $\frac{1}{2}$	Phone cable..	Marine Dept.....	1898
Chebucto head, N.S.....	Halifax, N.S.....		Phone.....	N.S. Tel. Co.....	1898
Devil island, N.S.....	Dartmouth, N.S.	2 $\frac{1}{4}$	Cable & phone	Marine Dept.....	1911
Sable island, N.S.....	All island stations	16	Phone.....	Marine Dept.....	1898
Main-à-dieu, N.S.....	Main-a-dieu vill'ge	3 $\frac{1}{4}$	Cable & phone	Govt. Tel. Service, P.W.D.	1904
Scatari, east end N.S..	Main-à-dieu light- house.	7 $\frac{1}{4}$	" .....	" .....	
Flat point, N.S.....	Sydney, C.B.....		Telegraph....	Govt. Tel. Service, P.W.D.	
Money point, N.S.....	Bay St. Lawrence	8	Phone.....	" .....	1909
St. Paul island, N.S. (Main Station).	Money point, C.B.	22	Cable.....	" .....	
St. Paul island, N.S. (NE. light).	Main station.....	2 $\frac{1}{4}$	Phone.....	Marine Dept. ....	1905
St. Paul island, N.S. (SW. light).	" .....	2 $\frac{1}{4}$	" .....	" .....	1905
Cheticamp island, N.S....	Eastern Harbour telegraph office.	6.8	Phone.....	Marine Dept.....	1913
Eastern Harbour lifeboat station, N.S.	" .....	7	" .....	" .....	1912-13
Henry island, N.S.....	Port Hood.....	6 $\frac{3}{4}$	Telegraph....	Govt. Tel. Service, P.W.D.	1907
Cape Bear, P.E.I.....	Murray river.....	8 $\frac{1}{4}$	Phone.....	P.E.I. Telephone Co.....	1904
Escuminac, N.B.....	Chatham.....	40	Phone.....		1890
Miscou point, N.B.....	Caraquet.....	55	Phone & cable	N.B. Telephone Co.....	1912-13
Belle Isle, N. end, Nfld...	S. end station.....	11	Phone.....	Marine Dept.....	1903
Point Amour, Labrador..	Pointe des Monts.	454	Telegraph....	Govt. Tel. Service, P.W.D	1902
Cape Ray, Nfld.....	Port aux Basques.	14	" .....	Western Union Tel. Co....	1883
Cape Race, Nfld.....	St. Johns, Nfld..		Telegraph....	" .....	
Old Harry, Magdalen Is., P.Q.	Cape St. Lawrence		Cable.....	Govt. Tel. Service, P.W.D	
Amherst island, P.Q.....	Aurigny.....	2	Telegraph and cable.	Govt. Tel. Service, P.W.D	
Heath point, Anticosti, P.Q.	South point.....	23	Telegraph....	" .....	



connected by Telegraph or Telephone with Commercial Centres.

Cost of Establish- ment.	Vote to which charged.	Remarks.	File No.
See remarks.		\$130 for construction. \$30 per'an. paid by signal service to the St. Martins Telephone Co. \$60 per an. paid by Meteorological service.	13999
			20141M
		Department pays toll.....	
		Department pays toll.....	
\$966.37, cable cost \$175 per mile.	Telephone connections.....	Dept. pays \$250 per an. to N.S. Tel. Co. for keeping in good condition.—See file, p. 56.	29401
\$613 00	Life-saving service.....	Dept. pays toll.....	29401
		Between the east and west lighthouses, taking in intermediate lookout stations, eight telephones in all.	17063
\$200 00	Telephone connections.....	Cable from C. Breton island and connections with east and west lighthouses and life-boat station. Signal station.....	29401
		Old signal station, which has been discontinued. Instrument still at station.	
			32782
\$200 00	Rewards for saving life.....		6022
\$462 51	Rewards for saving life.....	Telephone line connects look-out station, life-boat house and Cheticamp point light (1913).	31920
\$789 02	Life saving service.....		
		1904 to 1910 Dept. paid yearly rental of \$75. Since 1910 Dept. pays subscribers' rate of \$32 per annum plus tariff long distance rates.	27962
\$4,596 11	Telephone connection.....		
\$1,218 75		Line now out of order. Copper insulated wire No.12, partly on poles, partly laid on ground.	



Enclosure B—Continued.

DETAILS of Light Stations and other Aids to Navigation in Canada,

Station.	Connected with.	Length in Miles.	Description.	Constructed by	Year.
Bagot Bluff, Anticosti, P.Q.	Southwest point...	55	Telegraph....	Govt. Tel. Service, P.W.D..	.....
Southwest point, Anti- costi, P.Q.	Anse à Fougère....	21	Cable .....	" "	.....
West point, Anticosti, P.Q.	(Southwest point . Long Pt., Mingan.	28 21	Telegraph..... Cable.....	" " " "	..... .....
Pointe des Monts, P.Q....	Bersimis.....	52	Telegraph.....	" "	.....
Pointe Maquereau, P.Q....			Phone.....	G. N. W. Telegraph Co....	.....
Cape d'Espoir, P.Q.....			Telegraph.....	" "	.....
Cape Rosier, P.Q.....	Fame point.....	24	" .....	" "	.....
Fame point, P.Q.....	Cape Magdalen...	31	" .....	" "	.....
Cape Magdalen, P.Q.....	Rivière a la Martre.	34	" .....	" "	.....
Rivière à la Martre.....	Cap Chat.....	26	" .....	" "	.....
Cap Chat, P.Q.....	Matane.....	34	Telegraph.....	G. N. W. Telegraph Co....	.....
Matane., P.Q.....	Little Metis.....	24	" .....	" "	.....
Little Metis, P.Q.....	G.N.W. telegraph system.		" .....	" "	.....
Father point, P.Q.....	Rimouski.....		" .....	" "	.....
Rivière du Loup, P.Q.....	Fraserville.....		" .....	" "	1888
Cape Salmon, P.Q.....	St. Siméon.....	4	Telegraph and phone.	Govt. Tel. Service, P.W.D Saguenay & Chicoutimi Telephone Co..	1909 1912
St. Roch des Aulnaies, P.Q	G.N.W. system..	$\frac{1}{4}$	Telegraph....	G.N.W. Telegraph Co.....	1896
L'Islet, P.Q.....					
Crane island, P.Q.....	Montmagny.....	5	Cable.....	Bell Telephone Co.....	1905
St. Jean d'Orléans, P.Q...					
Quebec, P.Q.....	City exchange and copper circuit with signal sta- tion at Three Rivers.			Bell Telephone Co.....	
The Bridge, P.Q.....	Signal service of- fice, Quebec, by iron circuit....	6	Phone.....	Bell Telephone Co.....	1911
St. Nicholas, P.Q., sema- phore station.	Signal service of- fice, Quebec, by iron circuit.	12	Phone.....	Bell Telephone Co.....	1911
Portneuf, P.Q.....	Quebec-Three Riv ers circuit.	31	Phone.....	Bell Telephone Co.....	1908?
	Village telephone system.	1 $\frac{1}{4}$	" .....	Cie de Telephone de Portneuf	1910
	"	11	" .....	" " "	1912
Grondines, P.Q.....					
Deschaillons, P.Q., sema phore station.	Bell Tel. Co. at Three Rivers by iron metallic cir- cuit.	23			Pre- vious to 1902
Deschaillons government wharf.					1907
Batiscan.....	Three Rivers...	17			
Pointe aux Citrouilles, P.Q	Three Rivers, by copper circuit, and on Quebec- Montreal circuit	11		Bell Telephone Co.....	1914
Three Rivers, P.Q.....	Long distance cir- cuit.	$\frac{1}{3}$		Bell Telephone Co. ....	1907
Sorel, P.Q.....	Sorel local exch'ge and Montreal by private line.			Bell Telephone Co.....	
Bellmouth, P.Q.....					1915
Verchères, P.Q.....					1907
Cap St. Michel.....	Varennas.....			Bell Telephone Co.....	1915
Longue Pointe, P.Q.....	Signal service ex- change Montreal by iron metallic circuit..	5		Bell Telephone Co.....	



## SESSIONAL PAPER No. 21

connected by Telegraph or Telephone with Commercial Centres—*Continued.*

[illegible]



Enclosure B—Concluded.

DETAILS of Light Stations and other Aids to Navigation in Canada,

Station.	Connected with.	Length in Miles.	Description.	Constructed by	Year.
Montreal, P.Q.....	Signal service, private exchange, connected by copper circuit with Three Rivers.			Bell Telephone Co.....	1907
Lachine, P.Q.....	Signal service office, Montreal.			Bell Telephone Co.....	1914
Cascades, P.Q.....	Vaudreuil exch'ge.			Bell Telephone Co.....	1914
Presqu'ile, Ont.....	Brighton.....	8	Phone.....	Brighton Municipal Tele. Co.	1911
E. end Long point, Ont., life-saving station.	Port Rowan.....	16	" .....	Life-saving Service, Marine.	1911
Tobermory, Ont.....	Lionhead.....		Telegraph.....	G.N.W. Telegraph Co.....	1888
Cabot head, Ont.....	Brinkman corners.	11	Phone.....	Wm. Gillies.....	1913
Mississagi strait, Ont.....	Meldrum bay.....	6	" .....	Govt. Tel. Service, P.W.D.	
Estevan, B.C.....	Coal Haven.....	4	" .....	" .....	1913
Lennard island, B.C.....	Tofino.....	1½	Telegraph with cable.	" .....	1912
Amphitrite point, B.C....	Ucluelet.....	½	Phone.....		1908
Sechart, B.C.....	Alberni Clayoquot Govt. line.		Phone.....		1907
Cape Beale, B.C.....	Banfield creek....	6	Telegraph.....		
Pachena, B.C.....	Victoria-Cape Beale Govt. line.			Govt. Tel. Service, P.W.D.	1907
Tsusiatic, B.C.....	" .....		Phone.....	" .....	1907
Carmanah, B.C.....	" .....		Telegraph.....	" .....	
Seven Mile creek, B.C....	" .....		Phone.....	" .....	1907
Active pass, B.C.....	" .....		Cable.....	" .....	1908
Point Atkinson, B.C.....	White Cliff.....	1	Telegraph.....	" .....	1913
Brockton point, B.C.....	Vancouver.....	2	Phone.....		
Prospect point, B.C.....	Brockton point....	1½	" .....	Marine Dept.....	1910
Entrance island, B.C.....	Nanaimo.....	4	Cable.....	Govt. Tel. Service, P.W.D.	1913



SESSIONAL PAPER No. 21

connected by Telegraph or Telephone with Commercial Centres—*Concluded.*

Cost of Establish- ment.	Vote to which charged.	Remarks.	File No.
			34288
\$215 per an ..			
\$500 towards cost of line. \$1,872 93	Construction of lights..... Rewards for saving life.....	Contract made with W. W. Porte, who later sold to Company. With connection to W. end L.H. \$45 per an. paid Bell Telephone Co. for connections. Meteorological Service allows \$10 per month towards maintenance of line.	31393 17990 21968M
\$75 00	Maintenance of lights..... Telegraph service.....	Contribution towards expense of construction..... On line of cable to Cockburn island.	21971M
\$738 16	To provide for telephones...		22261M
			25371
			25371
			25371
			18095 7334 7334
	Meteorological service..... Construction of lights.....	Maintained for operation of semaphore service.....	



## APPENDIX No. 2.

## REPORT OF THE COMMISSIONER OF LIGHTS.

To the Deputy  
Minister of Marine and Fisheries,  
OTTAWA.

SIR,—I have the honour to submit the twelfth annual report of this branch. The principal work performed has been an extension of the gas buoy and beacon service throughout the various provinces, together with the maintenance of lights and other aids to navigation throughout the Dominion. The operations of this branch are set forth in tabular form in the following six enclosures, namely:—

*Enclosure No. 1.*—Statement, by provinces, showing the number of lights of the several orders, lightships, lightboats, lightkeepers, fog-alarm stations, buoys and submarine bells during the fiscal year 1914-15.

*Enclosure No. 2.*—Statement showing the names of lightstations and lightkeepers during the fiscal year 1914-15.

*Enclosure No. 3.*—Statement giving a complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year 1914-15.

*Enclosure No. 4.*—Statement showing complete list of stations at which submarine bells were operated during the fiscal year 1914-15.

*Enclosure No. 5.*—Statement, by localities, giving the number of unlighted buoys, stakes and bushes maintained throughout the Dominion during the fiscal year 1914-15.

*Enclosure No. 6.*—Statement showing new gas buoys and beacons established during the fiscal year 1914-15.

In conclusion, I desire to express and record my appreciation of the able assistance rendered by my staff, and the untiring application to duty exhibited by each member. It would not have been possible to carry out the large and increasing amount of work which is devolving upon this branch without the co-operation of all the officers connected with it.

I have the honour to be, sir,

Your obedient servant,

J. G. MACPHAIL,

*Commissioner*

OFFICE OF THE COMMISSIONER OF LIGHTS,  
DEPARTMENT OF MARINE AND FISHERIES,  
OTTAWA, March 31, 1915.



(Enclosure No. 1.)

STATEMENT, by provinces, showing the number of lights of the several orders, lightships, lightboats, lightkeepers, lightkeepers, fog-alarm stations, buoys, and submarine bells

	1st order lights.	2nd order lights.	3rd order lights.	4th order lights.	5th order lights.	6th order lights.	7th order lights.	Pressed lens lights.	Catoptric lights.	Electric bulb lights.	Total.	Lightships.	Lightboats.	Lightkeepers.	Fog-alarm stations only.	Diaphones.	Fog guns and bombs.	Fog horns and trumpets.	Fog whistles.	Sirens.	Fog-bells.	Hand fog-horns.	Hand fog-bells.	Gas buoys.	Whistling buoys.	Bell buoys.	Submarine bells.	(Other unlighted buoys.	Stakes and bushes.
New Brunswick.....	...	2	4	16	13	16	67	12	3	1	169	2	1	133	4	11	...	5	1	...	5	18	...	26	4	19	6	804	1151
Nova Scotia.....	4	4	10	48	28	32	69	25	80	8	308	2	...	279	3	22	1	1	1	4	...	57	...	39	20	52	5	1371	139
Prince Edward Island...	...	...	...	15	2	2	8	4	50	1	82	...	...	52	...	1	1	1	1	...	...	2	...	7	4	3	...	333	214
Quebec.....	5	7	15	20	5	17	53	22	81	1	229	4	...	167	1	20	7	1	4	1	...	21	3	56	1	3	5	262	125
Montreal.....	...	...	...	11	8	5	28	34	143	...	229	2	...	155	...	...	...	...	...	...	...	38	...	88	...	...	...	580	170
Ontario.....	...	5	9	38	18	20	120	43	93	5	351	1	...	196	...	29	...	1	2	...	1	...	...	102	...	4	1	931	19
Manitoba.....	...	...	...	2	2	...	4	...	3	1	12	...	...	7	...	...	...	...	...	...	...	4	...	...	...	2	...	12	...
British Columbia.....	6	1	5	11	10	5	77	15	5	6	141	1	...	77	4	22	...	1	...	...	...	8	...	18	2	3	4	234	...
Total.....	15	19	43	161	86	97	426	155	496	23	1,521	12	1	1,066	12	105	9	10	11	2	29	148	3	336	31	86	21	4,527	1,818

Besides the foregoing, the following numbers of lights are maintained on spar buoys, floats, or piles:—

(Quebec District) —	
Caribou river, Saguenay river.....	1
(Ontario District) —	
Detroit river.....	37
New Liskeard, lake Timiskaming.....	5
Ville Marie, ".....	6
Rideau river.....	133
Telegraph narrows, Bay of Quinte.....	6
(British Columbia District) —	
Kootenay lake.....	6
Kootenay landing.....	4
Meares spit.....	1
Middle rock, Victoria harbour.....	1
Stubbs spit.....	1

In addition, ten Dioptric gas lights are maintained in Hudson bay and strait.



Enclosure No. 2.

STATEMENT of lightstations and names of lightkeepers, etc., in the Dominion.  
NEW BRUNSWICK AGENCY.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
*Anderson Hollow breakwater.....	J. E. Moore.. ..	Jan. 16, 1911..	185 00
Bathurst range... ..	G. C. Sutherland.....	Mar. 20, 1882..	320 00
Barnes point .. ..	C. W. Barnes.....	Aug. 16, 1911..	170 00
Bayswater.....	F. E. Currie.....	Dec. 31, 1913..	145 00
Belloni point.....	E. H. Egan.....	May 17, 1892..	220 00
Belyea point.....	Mrs. Westfield Day.....	Oct. 19, 1906..	140 00
*Big Shippigan... ..	A. T. DeGrace.....	May 12, 1913..	360 00
*Bliss island .. ..	J. H. McLeod.....	Oct. 17, 1900..	625 00
Bon Ami point.....	Mrs. D. Arseneau(temporary) .. ..		180 00
Bridges point.....	A. B. Bridges.....	Oct. 23, 1911..	135 00
Buctouche bar.....	J. P. Cormier.....	July 26, 1902..	320 00
Buctouche range.....	H. B. Robicheaux .. ..	June 21, 1884..	260 00
Buctouche inner range.....	D. O. Maillet.....	July 7, 1883..	260 00
Campbellton range.....	P. McLean.....	Dec. 11, 1912..	160 00
Caraquet island.....	G. Lantaigne .. ..	June 16, 1888 ..	320 00
Caraquet range (front).....	J. O. Chaisson.....	May 11, 1912..	110 00
Caraquet range (back).....	P. A. Lantaigne.....	Mar. 27, 1913..	105 00
*Cassie point.....	Alfred Gallant.....	Jan. 28, 1914..	345 00
Cedars .. ..	J. E. Gagnon.....	May 4, 1912..	130 00
Chamcook.....	D. H. Craig.....	June 13, 1914..	190 00
Cherry Island fog-bell... ..	Mendel Fountain.....	Nov. 21, 1914..	220 00
Chockfish .. ..	M. C. Caissie.....	April 8, 1913..	85 00
Cocagne range .. ..	D. Goguen.....	Oct. 14, 1907..	220 00
Cox point.....	A. McBaine.....	May 6, 1898..	140 00
Dalhousie island.....	H. A. McNeill .. ..	Aug. 17, 1883..	380 00
*Dipper harbour.....	F. Belmore .. ..	Mar. 12, 1895..	205 00
*Drews head.....	J. M. Eldridge.....	May 2, 1904..	405 00
Duck island, Big, fog-alarm.....	Manfred L. Daggett.....	(temporary) .. ..	780 00
Enrage, Cape, light and fog-alarm.....	J. G. Barbour.....	May 11, 1888 ..	980 00
Escuminac, light and fog-alarm.....	K. R. McLennan.....	May 7, 1892..	1,180 00
Fanjoy point.....	W. C. Kennedy.....	Jan. 17, 1912..	130 00
Flewelling landing.....	M. Flewelling.....	April 20, 1890..	140 00
*Folly point.....	A. P. Belliveau.....	June 23, 1905..	345 00
Fox island ranges .. ..	G. Mills.....	June 23, 1897..	320 00
Gagetown.....	C. Brooks.....	Mar. 20, 1912..	130 00
Gannet rock, light and fog alarm.....	A. Wilson.....	Dec. 3, 1912..	1,320 00
Glenwood.....	E. D. Whelpley.....	May 7, 1912..	90 00
Goose lake.....	C. Brune.....	Jan. 25, 1913..	335 00
Grand Anse light .. ..	Onesime P. Landry.....	June 13, 1914..	220 00
Goodfellow Bar light .. ..	W. L. Mullin.....	Aug. 15, 1914..	180 00
*Grand harbour.....	Harry E. McDowell.....	June 13, 1914..	545 00
Grant Beach range .. ..	W. A. Davidson.....	April 3, 1909..	220 00
Great Salmon river.....	R. Connolly.....	Feb. 26, 1913..	85 00
*Green head.....	T. E. Looney.....	July — 1886..	245 00
Greys point.....	B. F. McCutcheon.....	Mar. 6, 1907..	120 00
Grindstone island, light and fog alarm.....	E. C. Peck.....	April 27, 1912..	930 00
Gull cove .. ..	L. Frankland.....	Nov. 14, 1902..	260 00
Hampstead wharf .. ..	W. Vanwart .. ..	Mar. 20, 1912 ..	130 00
Harper point .. ..	J. H. Blakely.....	July 30, 1910..	260 00
Hatfield point .. ..	O. E. Davis.....	Dec. 24, 1912..	125 00
Hay Island range .. ..	J. Allain.....	May 21, 1895..	260 00
*Head harbour, light and fog-alarm.....	C. D. Hilyard.....	May 5, 1907..	1,205 00
Hendry farm.....	A. M. Hendry.....	April 28, 1899..	140 00
Heron island.....	J. A. D. Robertson.....	April 1, 1902..	320 00
Jemseg.....	W. Sharp.....	Oct. 24, 1912..	130 00
Jourimain Cape.....	A. J. P. Bent.....	Jan. 25, 1901..	440 00
Kouchibouguac ranges.....	H. Gogain.....	June 26, 1908..	260 00
Leonardville.....	Alonzo Conley.....	Dec. 20, 1913..	230 00
Lepreau, light and fog-alarm. ....	W. M. Snider.....	Sept. 9, 1914..	480 00
etite, light and fog-alarm.....	F. Frauley (engineer).....	June 30, 1905..	960 00
Little Belledune.....	S. Dines.....	Mar. 27, 1907..	780 00
	J. A. Roberty.....	Feb. 21, 1905..	380 00

\*\$25 for operating fog-horn or bell.



## SESSIONAL PAPER No. 21

STATEMENT of lightstations and names of lightkeeper, etc.—*Continued.*NEW BRUNSWICK AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper*	Appointed.	Salary.
			\$ cts.
Long Eddy point, fog alarm.....	G. T. Tatton.....	Oct. 16 1886..	980 00
Long point.....	R. Bates.....	Aug. 19, 1912..	130 00
Lorneville Light.....	J. K. McAllister.....	Aug. 15, 1914..	180 00
Machias Seal island, light and fog-alarm.....	W. L. Harvey.....	July 8, 1904..	1,440 00
McColgan point.....	S. McColgan.....	Dec. 30, 1913..	120 00
Martin Head light.....	H. F. Armstrong.....	Oct. 24 1914..	380 00
McFarlane point.....	A. McFarlane.....	Dec. 3, 1909..	120 00
McMann point.....	H. R. McMann.....	Nov. 2, 1901..	140 00
Marks point.....	W. Maloney.....	Nov. 7, 1903..	220 00
Middle island.....	M. Murray.....	April 10, 1902..	320 00
Midjik bluff.....	A. Henderson.....	Oct. 4, 1894..	200 00
Miramichi lightship.....	R. McLean.....	April 12, 1902..	980 00
Miscou gully.....	R. McConnell, Jr.....	Sept. 9, 1897..	180 00
Miscou island, light and fog alarm.....	J. A. Ward.....	Sept. 28, 1912..	930 00
Moncton, Fort.....	G. W. Sillicker.....	May 27, 1912..	130 00
Mulbolland point.....	A. Parker.....	June 13, 1901..	260 00
Musquash island.....	E. M. Akerley.....	March 4, 1912..	160 00
*Musquash.....	J. S. Galbraith.....	Jan. 28, 1914..	645 00
*Navy Bar.....	J. Kilpatrick.....	Dec. 26, 1906..	625 00
Negro point.....	G. H. Clark.....	Feb. 23, 1915..	520 00
Neguac range.....	J. Robinson.....	June 15, 1912..	290 00
Neguac, lower range.....	C. McIntosh.....	Dec. 9, 1892..	180 00
Newcastle.....	R. B. Matheson.....	April 18, 1898..	140 00
Oak point, Miramichi, range.....	J. Bowie, Jr.....	June 2, 1906..	180 00
Oak point, St. John.....	Mrs. B. M. Francombe.....	Dec. 20, 1907..	140 00
Oromocto.....	Miss S. J. Brennan.....	Jan. 12, 1910..	180 00
Outhouse point.....	S. Edgett.....	June 14, 1910..	140 00
Palmer landing.....	B. R. Palmer.....	Dec. 22, 1911..	130 00
Partridge island, light and fog alarm.....	J. B. Dey.....	March 3, 1913..	1,260 00
*Pea point.....	G. D. Eldridge.....	Jan. 7, 1913..	375 00
Peck point, light and fog alarm.....	E. Lockhart.....	Aug. 31, 1908..	680 00
Perry point.....	S. T. Lamb.....	Nov. 4, 1911..	135 00
Petit Rocher.....	J. D. Laplante.....	May 16, 1911..	170 00
*Pokemouche.....	M. Hayden.....	Oct. 17, 1888..	405 00
*Pokesuidie.....	W. M. Cormier.....	May 24, 1912..	315 00
*Portage island range.....	P. Morrison, Jr.....	May 17, 1892..	405 00
Preston beach range.....	S. Preston.....	July 11, 1889..	220 00
Quaco, light and fog alarm.....	(C. Brown (lightkeeper) ... (L. B. Bradshaw (engineer))	Nov. 25, 1884.. Aug. 2, 1887..	490 00 490 00
Reid point.....	W. Lamb.....	Feb. 25, 1909..	140 00
Richibucto bar range.....	C. P. Richard.....	May 24, 1912..	240 00
Richibucto channel range.....	J. Robichaud.....	June 16, 1902..	260 00
Richibucto north beach range.....	F. McNeill.....	May 3, 1909..	260 00
Richibucto head.....	P. F. Richard.....	May 30, 1895..	320 00
Robertson point.....	C. Dean.....	March 20, 1912..	130 00
*St. Andrews.....	W. J. Pendleberry.....	April 10, 1889..	405 00
St. Louis gully range.....	D. L. Maillet.....	May 13, 1912..	160 00
St. Martins.....	W. Calhoun.....	Nov. 13, 1911..	195 00
Sand point.....	J. F. McCloskey.....	May 2, 1913..	125 00
Sapin point.....	D. L. Daigle.....	Aug. 9, 1912..	90 00
Shampier wharf.....	B. Hazen.....	Aug. 25, 1913..	125 00
Shediac harbour range.....	T. Harts.....	Feb. 17, 1905..	140 00
Shediac island range.....	M. Robinson.....	Dec. 29, 1873..	380 00
Shediac north channel range.....	F. Gould.....	Jan. 13, 1899..	140 00
Sheldrake island range.....	J. A. Morrison.....	Jan. 31, 1910..	380 00
Shippigan gully range.....	J. DeGrace.....	June 4, 1899..	360 00
*Southwest head, Grand Manan.....	T. P. Foster.....	Sept. 26, 1910..	705 00
*Southwest Wolf.....	E. Wright.....	March 6, 1906..	705 00
Spencer, Cape, light and fog alarm.....	(J. E. Collins (engineer))... C. McKee (lightkeeper)...	June 23, 1908.. May 24, 1912..	864 00 528 00
Spruce point.....	Mrs. G. B. Hannah.....	Sept. 15, 1892..	220 00
Stonehaven.....	W. Daley.....	July 30, 1913..	150 0

\*25 for operating foghorn or bell.



STATEMENT of lightstations and names of lightkeepers, etc.—Continued.

NEW BRUNSWICK AGENCY—Concluded.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
*Swallowtail.....	G. A. Lahey .....	Oct. 29, 1912..	585 00
Swashway range.....	S. Williston.....	June 4, 1902..	380 00
Tiner point, fog alarm.....	A. Splane.....	Oct. 26, 1905..	980 00
*Tongue shoal.....	T. Rooney.....	Dec. 26, 1906..	545 00
Tormentine range, Cape.....	J. Wall.....	June 5, 1912..	200 00
Tracadie North, range .....	F. D. Basque.....	Nov. 22, 1909..	380 00
Tracadie South.....	W. Godin.....	July 14, 1913..	230 00
Vin, baie du range.....	J. McLeod.....	Oct. 13, 1909..	320 00
Wilmot bluff.....	J. H. True.....	Sept. 12, 1899..	140 00

NOVA SCOTIA AGENCY.

Abbot harbour.....	W. H. B'Entremont.....	May 22, 1888..	140 00
Aconi point .....	J. C. Bonner.....	Nov. 6, 1903..	320 00
Advocate harbour .....	R. M. Morris .....	Sept. 12, 1912..	350 00
Amet island.....	W. Duncan .....	July 27, 1912..	560 00
Amherst basin range.....	W. S. Tait.....	Jan. 7, 1913..	240 00
Amherst point wharf.....	W. A. Downey.....	May 3, 1909..	120 00
Annapolis.....	T. M. Gavaza.....	July 14, 1913..	125 00
Apple river, light and fog alarm.....	H. E. Elderkin.....	Mar. 31, 1905..	980 00
Argyle .....	C. A. Amiro.....	Nov. 9, 1897..	600 00
*Arichat.....	W. Lavashe .....	Oct. 17, 1898..	405 00
Arichat, West (front).....	M. Gerrior .....	Feb. 20, 1906..	140 00
Arichat, West (back).....	E. Deleroy .....	Feb. 20, 1906..	140 00
Arichat, West wharf.....	C. Forrest .....	Nov. 8, 1911..	320 00
Arisaig.....	H. R. McAdam.....	Nov. 14, 1895..	180 00
Avon river bridges .....	Windsor Electric Co.....	June 12, 1906..	200 00
*Baccaro.....	H. Ross.....	Feb. 1, 1913..	540 00
Barrington lightship.....	A. N. Crowell.....	Jan. 7, 1913..	905 00
*Balanche point .....	Angus McMaster.....	May 24, 1912..	265 00
*Battery point.....	I. B. Heckman.....	Oct. 29, 1912..	435 00
Bass river.....	D. Vance .....	Oct. 24, 1907..	140 00
*Bear island.....	W. J. Malcolm.....	May 8, 1913..	335 00
Bear river .....	H. Warren .....	Jan. 7, 1913..	240 00
Beaver harbour.....	W. Curry .....	Nov. 7, 1914..	380 00
Beaver island.....	T. Sampson.....	Oct. 13, 1892..	140 00
Beaver island, S.E. coast, light and fog alarm.....	W. E. O'Leary.....	Feb. 22, 1900..	1,180 00
Belliveau.....	J. H. Relliveau.....	Feb. 16, 1889..	140 00
*Betty island.....	P. Christian .....	June 29, 1901..	680 00
*Bickerton Port .....	T. O'Hara.....	Jan. 26, 1901..	285 00
Biglow point range.....	J. L. Peers.....	Oct. 7, 1912..	160 00
Blackrock .....	C. Robinson.....	Mar. 16, 1885..	440 00
Blackrock point.....	M. D. Morrison.....	June 8, 1892..	380 00
*Boars head.....	{ F. Rugles.....	May 24, 1901..	545 00
	{ Elmer Wyman (asst.).....	Mar. 23, 1914..	435 00
*Bon portage island.....	M. M. Nickerson.....	June 28, 1913..	460 00
Borden wharf.....	F. R. Clark.....	April 29, 1904..	180 00
Bourgeois inlet.....	D. Sampson.....	April 12, 1912..	110 00
Bras d'or (front).....	R. McLennan.....	Dec. 11, 1912..	130 00
Bras d'Or (back).....	A. Fraser.....	Jan. 13, 1903..	180 00
Brier island, light and fog alarm.....	{ J. N. Peters (lightkeeper).....	June 6, 1901..	565 42
	{ B. H. Morrell (engineer).....	June 6, 1901..	614 58
Brooklyn pier.....	H. Godfrey.....	Mar. 25, 1909..	140 00
Budget.....	S. E. Burns.....	Oct. 24, 1912..	290 00
*Bunker island .....	F. H. Doane.....	July, 27, 1904..	545 00
*Bunker island, N.E .....	J. H. Scoville.....	Jan. 9, 1907..	320 00
Burntcoat.....	W. Y. Faulkner.....	June 22, 1898..	380 00
Campbell island.....	D. A. McDonald.....	July 23, 1911..	210 00
*Candlebox island.....	B. Le Blanc.....	Nov. 1, 1892..	465 00
*Canso harbour.....	J. Long.....	Dec. 31, 1896..	465 00

\* \$25 for operating fog horn or bell.



## SESSIONAL PAPER No. 21

STATEMENT of lightstations and names of lightkeepers, etc.—*Continued.*NOVA SCOTIA AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.	
			\$	cts.
Canso range.....	W. J. Matthews.....	Dec. 17, 1904..	320	00
Canso, North.....	J. H. McDonald(temporary)	.....	380	00
Caribou.....	J. A. McFarlane.....	May 24, 1912..	480	00
*Carter island.....	R. McDonald.....	Sept. 28, 1896..	405	00
Caveau point range.....	N. D. Desveaux.....	April 27, 1912..	240	00
Charlo harbour range.....	A. Richard.....	Dec. 8, 1911..	250	00
Cnebucto head, light and fog alarm.....	R. Holland.....	Aug. 31, 1906..	1,180	00
*Chester.....	U. Young.....	Feb. 15, 1884..	625	00
Cheticamp.....	D. Desveaux.....	July 19, 1912..	410	00
Cheticamp harbour range.....	M. Roach.....	Aug. 5, 1912..	240	00
Cheverie.....	H. Macumber.....	May 27, 1912..	90	00
Church point.....	J. H. Saulnier.....	Aug. 8, 1878..	260	00
Ciboux Island.....	D. Campbell.....	Oct. 29, 1912..	560	00
Clarke cove range.....	A. Campbell.....	Sept. 15, 1910..	180	00
Coffin island.....	J. E. Wentzell.....	June 2, 1909..	600	00
Cold Spring head.....	Fred P. Ackles.....	Aug. 29, 1914..	180	00
Cole harbour range.....	G. C. Jamieson.....	Oct. 21, 1898..	260	00
Cole harbour.....	W. M. Munroe.....	April 23, 1907..	120	00
Country harbour.....	H. Burke.....	June 11, 1902..	600	00
Cranberry island, light and fog-alarm.....	W. T. Jamieson.....	(Temporary)...	980	00
Crichton head.....	H. H. Crichton.....	May 6, 1874..	320	00
Cross island, light and fog-alarm.....	C. Whynacht.....	June 20, 1910..	1,180	00
Croucher island.....	G. Croucher.....	Jan. 31, 1883..	440	00
Dartmouth.....	W. Patterson.....	June 3, 1903..	180	00
Derby point.....	D. C. McLean.....	July 19, 1912..	200	00
Devil islands, lights.....	W. C. Fulker.....	May 3, 1886..	680	00
Digby pier.....	E. Beamen.....	May 29, 1897..	140	00
Dimock point, lights.....	Windsor Electric Co.....	June 12, 1906..	130	00
Dog island.....	S. Joyce.....	July 4, 1884..	260	00
Dover.....	E. Moreash.....	Sept. 24, 1906..	320	00
Eastern Points harbour.....	C. E. Mason.....	May 23, 1911..	115	00
Eatonville.....	R. Kirkpatrick.....	June 27, 1913..	85	00
Economy.....	E. McLellan.....	Mar. 8, 1912..	90	00
*Eddy point.....	E. Mundell.....	July 28, 1903..	625	00
*Egg island.....	H. M. Stoddard.....	Mar. 22, 1909..	705	00
*Felix, Port.....	W. H. David.....	May 8, 1913..	335	00
Fisherman harbour.....	T. Beiswanger.....	Jan. 19, 1906..	260	00
Five Islands.....	C. A. McBurnie.....	Apr. 6, 1914..	120	00
Flat point, light and fog-alarm.....	C. M. Peters (lightkeeper).....	April 13, 1910..	565	42
	D. Campbell (engineer).....	Aug. 12, 1912..	614	58
Flint island, light and fog-alarm.....	A. Covey.....	July 4, 1913..	1,320	00
*Fort point.....	J. Misener.....	May 16, 1896..	285	00
Fourchu cape, light and fog-alarm.....	T. S. Doane.....	Dec. 31, 1904..	1,180	00
Fourchu head.....	G. Hardy.....	June 16, 1909..	220	00
Freels cape, fog-alarm.....	M. Myrick.....	Sept. 26, 1910..	1,180	00
Friar head.....	M. Doucette.....	Nov. 18, 1911..	95	00
Gabarus.....	J. McDonald.....	Dec. 10, 1908..	320	00
George, cape.....	A. L. McEachern.....	Sept. 16, 1898..	680	00
*George island.....	R. Ross.....	Jan. 17, 1885..	405	00
George, port.....	J. C. Anderson.....	Mar. 27, 1912..	160	00
Gilbert point.....	J. W. Melanson.....	Aug. 18, 1904..	300	00
Gillis point.....	H. McLean.....	Dec. 18, 1897..	260	00
Glace bay (front).....	M. McNeill.....	Nov. 19, 1907..	140	00
Glace bay (back).....	A. McFarlane.....	Nov. 19, 1907..	140	00
Glasgow point.....	A. Clory.....	July 25, 1894..	260	00
Grande digue.....	C. A. Kaulback.....	Feb. 12, 1909..	120	00
Grand-Etang.....	S. LeBlanc.....	Mar. 25, 1905..	120	00
*Grand passage.....	C. Buckman.....	Jan. 7, 1901..	405	00
Granville centre.....	H. Roney.....	Feb. 24, 1904..	140	00
Green island.....	E. E. Boudrot.....	Dec. 3, 1912..	640	00
Green island, Lunenburg.....	M. B. Pearl.....	Aug. 11, 1908..	680	00
Gregory island.....	M. Sampson.....	May 11, 1907..	260	00
Greville, Port, range.....	E. A. Hatfield.....	June 29, 1908..	320	00

\* \$25 for operating fog-horn or bell.



6 GEORGE V, A. 1916

STATEMENT of lightstations and names of lightkeepers, etc.—*Continued.*NOVA SCOTIA AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.	
			\$	cts.
Guion island.....	E. Bagnall.....	Dec. 10, 1912..	640	00
*Guysborough harbour.....	G. E. Scott.....	Jan. 12, 1914..	260	00
Hall harbour.....	E. McDonald.....	Aug. 10, 1911..	210	00
Hampton.....	H. Foster.....	Dec. 2, 1911..	210	00
Harbour island.....	A. I. Luddington..	Feb. 3, 1912..	395	00
Hardwood island.....	John W. Whitman..	June 13, 1914..	180	00
Havre Bouché, range.....	P. Webb.....	Feb. 18, 1896..	380	00
Haute, Isle.....	P. E. Morris.....	Aug. 2, 1904..	680	00
Hebert, Port.....	W. Burgess.....	July 20, 1892..	260	00
Henry island.....	D. A. McLennan.....	Aug. 3, 1907..	600	00
Herring cove.....	P. V. Hayes.....	April 29, 1912..	160	00
Highland village.....	Noble Chisholm.....	Feb. 23, 1912..	90	00
Hobson island.....	N. Mosher.....	Oct. 19, 1912..	410	00
Hood, Port.....	R. D. McDonald.....	Feb. 17, 1913..	335	00
Horton.....	Mrs. S. M. Rathburn..	Sept. 3, 1879..	380	00
Hubbard cove.....	O. Shatford.....	July 19, 1912..	350	00
Indian harbour.....	H. Boutlier.....	June 6, 1901..	260	00
Ingonish harbour.....	S. Hawley.....	Aug. 19, 1912..	240	00
Ingonish island.....	R. F. Warren.....	Sept. 17, 1903..	520	00
Ingonish, south harbour.....	J. Young.....	July 24, 1912..	90	00
Iona.....	M. D. McNeil.....	Aug. 15, 1913..	150	00
*Isaac harbour.....	I. L. Griffin.....	April 28, 1894..	405	00
Jeddore Harbour range.....	J. Faulkner.....	Aug. 2, 1913..	275	00
*Jeddore rock.....	J. W. Mitchell.....	Sept. 29, 1882..	680	00
*Jerome point.....	J. H. Barron.....	April 4, 1913..	335	00
*Jerseyman island.....	A. Thériault.....	May 31, 1905..	465	00
Joggins.....	F. Williams.....	May 13, 1912..	200	00
Jordan.....	D. Wolfe.....	Nov. 4, 1912..	160	00
Ketch harbour.....	C. Martin.....	May 19, 1905..	140	00
Kidston island.....	D. McRae.....	May 17, 1892..	320	00
*Kingsport.....	J. P. Corkum.....	Feb. 19, 1912..	185	00
*Lanave.....	W. H. Palmer.....	May, 22, 1878..	345	00
L'Ardoise, Lower (front).....	E. Burke.....	Mar. 27, 1912..	90	00
L'Ardoise, Lower (back).....	A. Birrett.....	Mar. 27, 1912..	90	00
Lingan head.....	J. Kelly.....	Dec. 2, 1911..	300	00
*Liscomb.....	W. Redmond.....	Oct. 29, 1912..	505	00
Little Dyke.....	J. B. Urquhart.....	April 18, 1912..	90	00
*Little Hope.....	Reuben J. Colp.....	Oct. 30, 1913..	930	00
Little Lorembec.....	P. Gallant.....	Jan. 19, 1900..	180	00
Little Narrows.....	M. Matheson.....	Oct. 19, 1912..	200	00
*Lockeport.....	B. Decker.....	Nov. 27, 1913..	540	00
Lorne, Port.....	C. B. Beardsley.....	Dec. 3, 1912..	350	00
*Louisburg, light and fog-alarm.....	W. Cameron (lightkeeper).....	Jan. 15, 1913..	396	95
	D. A. Campbell (engineer).....	May 20, 1902..	1,043	15
Louisburg range.....	T. Connington.....	Oct. 26, 1907..	320	00
Mabou (front).....	J. B. McDonald.....	Sept. 20, 1912..	110	00
Mabou (back).....	R. McLean.....	Dec. 7, 1906..	120	00
McKenzie point.....	H. McRae.....	July 27, 1912..	240	00
McNab island.....	M. Lynch.....	June 23, 1905..	440	00
McNeill beach.....	L. McNeil.....	Aug. 6, 1884..	140	00
*Main-à-dieu.....	T. Campbell.....	Aug. 5, 1912..	410	00
*Maitland, Port.....	A. J. Sallows.....	Dec. 23, 1900..	285	00
Maitland wharf.....	L. Lawrence.....	Feb. 28, 1911..	95	00
Man-o'-War point.....	M. N. McLeod.....	Jan. 5, 1912..	130	00
Margaree.....	A. Y. McLellan.....	Sept. 12, 1912..	560	00
Margaree harbour (front).....	M. A. Dunn.....	May 12, 1903..	120	00
Margaree harbour (back).....	R. McLennan.....	June 8, 1901..	120	00
Margaretville.....	J. Cleveland.....	Jan. 15, 1912..	290	00
Marjorie island.....	M. McDonald.....	Sept. 22, 1909..	180	00
*Mary Joseph.....	C. Turner.....	Aug. 27, 1913..	335	00
Masstown.....	R. Dykeman.....	Feb. 24, 1913..	85	00
Mauger beach, light and fog-alarm.....	W. Icceton, Sr.....	July 8, 1903..	980	00
Medway.....	S. T. Foster.....	Mar. 20, 1900..	140	00

\* \$25 for operating fog-horn or bell.



## SESSIONAL PAPER No. 21

STATEMENT of lightstations and names of lightkeepers, etc.—*Continued.*NOVA SCOTIA AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.	
			\$	cts.
*Medway head.....	J. Wynacht .....	April 18, 1913..	335	00
Metaghan river.....	J. A. Melancon.....	Dec. 7, 1911..	170	00
Minudie.....	F. Vernon.....	May 3, 1909..	100	00
Mitchener point.....	J. Smith.....	Sept. 28, 1912..	240	00
*Moser island.....	S. Moser.....	Nov. 6, 1885..	465	00
*Mouton, Port.....	A. H. Cook.....	April 27, 1912..	435	00
Mullins point range.....	J. Mullins .....	June 8, 1892..	320	00
Munro point.....	F. D. McLeod.....	May 13, 1912..	200	00
Musquodoboit (front).....	J. Kent.....	April 20, 1904..	187	77
Musquodoboit (front).....	F. S. Kent (Asst).....	Mar. 10, 1914..	72	23
Musquodoboit (back).....	A. M. Kent.....	Nov. 20, 1908..	180	00
*Negro island.....	B. Nickerson.....	July 26, 1897..	520	00
*Neil harbour.....	G. Sweet .....	Aug. 11, 1911..	250	00
New harbour.....	S. Zinck.....	Mar. 5, 1913..	105	00
Noel.....	J. Conley.....	Nov. 19, 1913..	125	00
Northeast Arm (sheet harbour).....	James Perry.....	Nov. 24, 1914..	100	00
North, Cape, light and fog-alarm.....	M. C. McPherson (l'gtkeeper).....	Feb. 6, 1913..	525	00
North East harbour range.....	J. G. McAskill (engineer).....	May 29, 1911..	805	00
Or, Cap d', fog-alarm.....	E. Hagar.....	Jan. 28, 1914..	260	00
*Ouetique island.....	D. P. McAleese.....	Oct. 30, 1913..	905	00
*Owls head .....	F. A. Burke.....	Feb. 16, 1907..	545	00
*Page island.....	S. W. Blaxland.....	Dec. 2, 1911..	425	00
Parker cove.....	A. M. Powell.....	Feb. 17, 1906..	345	00
*Parrsboro.....	C. Halliday.....	May 30, 1912..	160	00
*Pease island.....	W. J. Simpson.....	Oct. 27, 1911..	500	00
Peggy point.....	William Robbins (tempor.).....	.....	440	00
Pennant harbour.....	S. H. Garrison.....	Dec. 22, 1902..	545	00
*Petitdegrat.....	P. A. Gray.....	June 30, 1903..	180	00
Pictou bar.....	X. Marchand.....	Dec. 3, 1912..	290	00
Pictou custom-house.....	G. Carmichael.....	Nov. 12, 1910..	600	00
Pictou Harbour range.....	D. Munro.....	July 19, 1912..	130	00
Pictou island, east end.....	J. Dicks.....	July 19, 1912..	290	00
Pictou island, west end.....	A. McFarlane.....	June 8, 1892..	600	00
Pictou Island wharf .....	C. D. Patterson .....	Mar. 29, 1905..	600	00
Pomquet island.....	J. McLean.....	Dec. 22, 1911..	130	00
Pope harbour.....	M. Murphy.....	Dec. 18, 1890..	520	00
Portapique.....	J. Abriel .....	Nov. 18, 1911..	425	00
Porter point.....	W. Chisholm.....	Feb. 26, 1914..	120	00
*Poulamon.....	Frederick W. Bishop.....	April 29, 1904..	180	00
Prim point, light and fog-alarm.....	H. Young.....	Dec. 10, 1912..	290	00
*Pubnico harbour .....	L. M. Ellis.....	Oct. 19, 1912..	1,080	00
Pugwash.....	G. D. Amiro .....	Feb. 6, 1893..	465	00
*Quaker island.....	C. J. Chapman.....	June 15, 1912..	410	00
*Queensport.....	E. Fader.....	Feb. 9, 1910..	465	00
Race, Cape, light and fog-alarm.....	T. O'Leary .....	April 12, 1913..	395	00
Red islands.....	J. Myrick.....	Nov. 1, 1897..	2,300	00
*Redman head.....	J. P. Campbell.....	Nov. 30, 1901..	180	00
Rond, Cap.....	J. Croft.....	Sept. 10, 1909..	285	00
Roseway, Cape, light and fog-alarm.....	J. J. Mauger.....	Nov. 16, 1898..	520	00
Sable, Cape, light and fog-alarm.....	J. L. McKenna.....	Mar. 31, 1899..	1,180	00
Sable island, E. E.....	A. H. Cunningham.....	July 16, 1902..	1,180	00
Sable island, W. E.....	J. Gregoire.....	.....	300	00
*Sable island, Cape, west head.....	J. Edwards.....	.....	300	00
St. Ann harbour.....	W. B. Smith, jr.....	April 12, 1890..	95	00
St. Esprit island.....	A. Nicholson.....	June 5, 1905..	260	00
*St. George, Cape.....	A. Ferguson.....	Feb. 27, 1914..	620	00
St. Lawrence, Cape.....	John Murray.....	Nov. 3, 1882..	345	00
St. Mary, Cape.....	C. Jamieson.....	Sept. 21, 1893..	600	00
*St. Mary, Cape, F. A.....	B. H. Robicheau.....	July 5, 1886..	520	00
St. Paul island, N., light and fog-alarm.....	Dorsite Doucette.....	Nov. 7, 1914..	400	00
St. Paul island, S.....	J. McLeod.....	Nov. 1, 1912..	1,440	00
Salter head.....	A. G. McNeil.....	Sept. 5, 1913..	620	00
	C. Smith.....	June 21, 1888..	120	00

\* \$25 for operating fog-horn or bell.



STATEMENT of lightstations and names of lightkeepers, etc.—Continued.

NOVA SCOTIA AGENCY—Continued.

Name of Station.	Name of Lightkeeper,	Appointed.	Salary.	
			\$	cts.
Sambro, light and explosive fog-signal.....	A. J. Gilkie.....	April 19, 1914..	880	00
Sambro harbour.....	J. H. Finlay.....	Dec. 7, 1899..	180	00
Sambro inner island .....	E. Smith.....	Jan. 3, 1908..	180	00
*Sand Spit.....	N. D. Butler.....	Feb. 6, 1913..	335	00
Scatari, light and fog-alarm.....	J. Nearing.....	May 25, 1912..	1,440	00
Seal island, S.E. coast, light and fog-alarm....	J. Crowell.....	Oct. 14, 1896..	1,180	00
Shafner point.....	J. K. Healy.....	Dec. 17, 1912..	240	00
Sharp, Cape, light and fog-alarm.....	J. E. George .....	April 12, 1913..	905	00
Sheet Harbour passage.....	G. W. Wambolt (temp.)....	Dec. 25, 1911..	115	00
*Sheet rock.....	S. Kenny.....	June 2, 1909..	705	00
*Ship harbour.....	H. Parmer.....	Oct. 14, 1899..	405	00
Shulie.....	C. Patterson .....	Oct. 26, 1905..	260	00
Sissiboo.....	L. P. Amirault.....	April 10, 1912..	290	00
Spencer island.....	R. Spicer.....	Oct. 22, 1912..	160	00
Spencer point.....	R. A. Spencer.....	April 1, 1870..	180	00
Steven Point range.....	D. Fullerton.....	Oct. 7, 1912..	160	00
*Stoddard island.....	E. Larkin.....	Mar. 18, 1896..	345	00
*Sydney bar.....	D. H. McNeil.....	Nov. 16, 1912..	410	00
Sydney, Battery Point, range.....	J. J. McDonald... ..	June 30, 1913..	85	00
Sydney range (front).....	H. Lewis.....	May 8, 1913..	335	00
Sydney range (back).....	A. J. Lewis.....	May 2, 1905..	260	00
Tanner island.....	R. G. Wight.....	Sept. 24, 1913..	190	00
Terence bay.....	S. P. Slaunwhite.....	Oct. 13, 1903..	180	00
Three Top island.....	H. S. Munroe.....	May 24, 1912..	410	00
*Torbay.....	G. A. Shrader.....	May 13, 1912..	435	00
Troop point.....	R. F. Schaffner .....	Nov. 7, 1912..	160	00
Tupper, Point.....	D. Gillis .....	Feb. 6, 1906..	440	00
Tusket river .....	S. LeBlanc.....	Aug. 2, 1889..	380	00
Victoria beach.....	S. Haynes.....	April 13, 1912..	160	00
Wade, Port .....	H. Burke.....	April 15, 1912..	130	00
Wallace Harbour range.....	Robert Langville.....	May 18, 1914..	220	00
Walton harbour.....	S. Brown.....	Dec. 16, 1911..	240	00
*Wedge island .....	W. R. Church.....	Mar. 22, 1907..	705	00
Westhaver island .....	A. Strum.....	Sept. 8, 1888..	320	00
West Ironbound island.....	F. N. Wolfe .....	Dec. 19, 1910..	440	00
*Westport.....	E. W. Suthern.....	April 12, 1890..	545	00
*Whitehead island.....	A. Munroe.....	Jan. 15, 1912..	980	00
Whycocomagh.....	M. Matheson .....	Sept. 11, 1884..	120	00
Wolfeville.....	J. L. Franklyn.....	April 4, 1902..	180	00
*Woods harbour.....	J. Goodwin.....	Aug. 27, 1900 ..	345	00
Yarmouth Corner beacon.....	C. J. O'Hanley.....	Oct. 17, 1905..	260	00
Watt Point.....	Alex. Kenney.....	Nov. 10, 1914..	100	00

PRINCE EDWARD ISLAND AGENCY.

Alberton range .....	J. Skerry .....	June 12, 1913..	125	00
Annandale range.....	J. Norton.....	July 12, 1912..	160	00
Bear, Cape .....	H. Hyde.....	July 5, 1912..	480	00
Belle river.....	M. J. Bell .....	April 29, 1913..	85	00
Big Tignish range.....	D. Handrahan .....	Oct. 7, 1912..	200	00
*Blockhouse point.....	N. W. Currie.....	April 27, 1912..	505	00
Brighton Beach range .....	J. Purcell.....	Dec. 16, 1911..	365	00
Brush Wharf range.....	F. F. Dreeland.....	Mar. 30, 1912..	110	00
Cardigan river .....	J. D. Morrison.. ..	Aug. 15, 1901..	140	00
Cascumpeque .....	W. Mallet.....	Feb. 27, 1914..	380	00
Covehead range.....	J. McCabe.....	Dec. 20, 1911..	135	00
Darnley Basin range.....	C. Taylor.....	June 14, 1897..	120	00
Darnley Point range.....	C. Morrison.....	May 14, 1913..	220	00
Douse Point range.....	H. A. McDonald... ..	(Temporary)....	100	00

\* \$25 for operating fog-horn or bell.



SESSIONAL PAPER No. 21

STATEMENT of lightstations and names of lightkeepers, etc.—Continued.

PRINCE EDWARD ISLAND AGENCY—Continued.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
East point, light and fog-alarm .....	A. C. McIntyre .....	April 10, 1912..	930 00
East Souris.....	G. N. McDonald.....	July 14, 1913..	460 00
Egmont, cape.....	E. J. Arsenault.....	Aug. 26, 1912..	350 00
Fish Island range .....	P. Hickey .....	May 22, 1913..	395 00
Georgetown (front) .....	J. Vatcher .....	Feb. 27, 1914..	180 00
Georgetown (back) .....	R. Westaway .....	July 19, 1912..	220 00
Georgetown wharf .....	S. Hemphill .....	Jan. 13, 1913..	150 00
Hazard Point range.....	E. Stewart.....	June 11, 1910..	320 00
*Indian point .....	F. W. Peters.....	May 2, 1913..	485 00
Leards range (outer).....	A. J. Howatt.....	July 22, 1893..	180 00
Leards range (inner) .....	K. C. Holmes.....	May 22, 1912..	160 00
Little Channel range .....	W. Hardy .....	July 26, 1875..	180 00
London, New range .....	J. A. Pidgeon.....	May 24, 1912..	200 00
Miminegash (front).....	P. O'Brien.....	May 14, 1897..	120 00
Miminegash (back) .....	J. Costain .....	June 5, 1913..	105 00
Murray harbour (front).....	L. McNeill .....	April 17, 1912..	110 00
Murray harbour (back) .....	R. Penny.....	Nov. 11, 1897..	120 00
North point.....	D. P. McCarthy .....	Aug. 5, 1912..	410 00
Northport range .....	W. A. Smith .....	May 12, 1914..	140 00
North Rustico ranges.....	L. Blacquiére.....	April 22, 1912..	200 00
Panmure Head light and fog-alarm.....	W. A. McDonald .....	Sept. 28, 1912..	465 00
	M. Condon (engineer) .....	Aug. 10, 1908..	490 00
Prim point. ....	S. A. McLean .....	July 27, 1912..	410 00
Savage Harbour range.....	J. A. McDonald .....	July 11, 1889..	180 60
Sea Cow Head .....	M. P. O'Raneghan.....	April 21, 1873..	440 00
Shipwreck point.....	F. McKinnon.....	Oct. 30, 1913..	395 00
Summerside (back) .....	F. Muttart.....	May 3, 1912..	130 00
Summerside (front).....	J. Fraser.....	April 12, 1897..	180 00
St. Peters island .....	J. J. Taylor .....	June 15, 1912..	350 00
St. Peters range.....	J. McGrath .....	June 15, 1912..	200 00
Tracadie range .....	W. A. McDonald .....	Dec. 22, 1911..	170 00
Tryon, Cape.....	W. Bell.....	Mar. 17, 1905..	380 00
Warren Farm range.....	C. E. H. Newson.....	May 11, 1912..	130 00
West point.....	W. McDonald .....	Aug. 22, 1876..	440 00
West Roint wharf.....	J. N. Ladner .....	Sept. 6, 1912..	130 00
Wood island.....	L. Morrow.....	Oct. 29, 1912..	350 00
Wood Island Harbour range.....	J. Young .....	Nov. 14, 1902..	140 00
Wrights range.....	C. L. Wright .....	June 14, 1894..	180 00

QUEBEC AGENCY.

Amherst island.....	C. Cormier.....	Mar. 21, 1911..	500 00
*Amherst wharf .....	John Savage.....	Mar. 20, 1914..	80 00
Amour point, light and fog alarm.....	T. Wyatt.....	Oct. 18, 1889..	1,440 00
Anguille, cape, light and fog alarm .....	A. Patry .....	Oct. 9, 1908..	1,440 00
Ange Gardien, (back) .....	P. Vézina .....	Mar. 14, 1912..	110 00
Ange gardien, (front).....	F. Doyon.....	Apr. 12, 1912..	110 00
Anticosti, S. W., point.....	Z. Lemieux.....	July 25, 1900..	880 00
Anticosti, west point, light and explosive fog signal .....	L. Malouin .....	May 24, 1912..	930 00
Bagot Bluff, light and fog alarm.....	E. Laprise.....	Apr. 18, 1903..	1,180 00
*Barachois de Malbaie .....	J. Girard .....	May 14, 1912..	110 00
Basile, Pointe à (front).....	E. Douville .....	Feb. 6, 1901..	220 00
Basile, Pointe à (back).....	G. Demers.....	Mar. 12, 1914..	220 00
*Basse, Point .....	A. Arseneau.....	May 17, 1911..	95 00
Bauld, Cape, light and fog alarm .....	E. Fontaine .....	July 15, 1905..	1,440 00
Beaufils, Anse à .....	P. J. Ferguson.....	May 21, 1912..	90 00
Bélier, Ile au .....	W. Gaudreault, jr.....	Aug. 29, 1914..	180 00
Bellechasse .....	J. O. Bilodeau.....	June 15, 1903..	520 00
Belle Isle, north end, light and fog alarm.....	W. G. Wyatt .....	Oct. 16, 1913..	1,475 00
Belle Isle, south end, light and fog alarm.....	J. Richards .....	Oct. 7, 1912..	1,675 00

\$25 for operating fog-horn or bell.



6 GEORGE V, A. 1916

STATEMENT of lightstations and names of lightkeepers, etc.—*Continued.*QUEBEC AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.	
			\$	cts.
Bersimis range.....	Rev. F. Petal.....	Aug. 20, 1914..	140	00
Bicquette island, light and fog alarm.....	E. Heppel.....	Mar. 21, 1913..	1,030	00
Birds rocks, light and fog alarm.....	E. Bourque.....	Aug. 5, 1912..	1,550	00
Bleue, Pointe.....	A. Tessier.....	June 9, 1904..	100	00
Bouaventure, Little.....	B. Arsenault.....	July 26, 1913..	85	00
Bonaventure point.....	O. Bourdage.....	June 2, 1913..	275	00
Bonaventure river.....	F. Arsenault.....	April 26, 1913..	85	00
Brandy pots.....	A. Leclerc.....	June 30, 1914..	550	00
Brion island.....	P. Chevrier.....	June 23, 1905..	600	00
Brulé Cap, range.....	F. Filion.....	Feb. 24, 1912..	560	00
Caribou river, (front).....	H. Savard.....	May 12, 1913..	110	00
Caribou river, (back).....	J. Savard.....	July 1, 1892..	120	00
*Carleton.....	L. Leblanc.....	April 12, 1913..	395	00
Carleton wharf.....	J. Cauchon.....	July 20, 1913..	85	00
Carlisle, new.....	J. Chisholm.....	Dec. 17, 1908..	100	00
Chat, Cap, light and explosive fog signal.....	L. Côté.....	Dec. 3, 1901..	880	00
Chat, River range.....	J. Chenard.....	Dec. 15, 1911..	135	00
Chicoutimi.....	A. Harvey.....	May 30, 1889..	100	00
Cloridorme range.....	J. Francœur.....	Dec. 23, 1912..	150	00
Clark city.....	F. W. Clarke.....	Feb. 10, 1913..	90	00
Corbeau, Cap au.....	P. Cimon.....	July 4, 1912..	110	00
Coudres, Isle aux.....	E. Pednault.....	April 15, 1912..	90	00
Crane island.....	D. Vézina.....	April 26, 1904..	440	00
*Daniel, Port.....	M. McInnis.....	Jan. 19, 1914..	105	00
*Daniel, Port west.....	I. McKenzie.....	Dec. 26, 1912..	150	00
D'Espoir, Cape.....	C. Bourget.....	Nov. 1, 1897..	600	00
Dogs, Cape, light and fog alarm.....	L. Bergeron.....	Sept. 11, 1909..	980	00
Domaine (front).....	N. Gagnon.....	April 23, 1912..	110	00
Domaine (back).....	X. Emond.....	July 13, 1908..	120	00
East cape.....	G. Sergerie.....	Nov. 3, 1910..	210	00
*Eboulements, Les.....	H. Tremblay.....	Mar. 7, 1914..	80	00
Egg Island.....	E. Chouinard.....	May 24, 1911..	640	00
Eau, Anse à l'.....	A. Gingras.....	May 29, 1906..	100	00
*Entry island.....	G. F. Cullins.....	July 30, 1901..	380	00
Escoumains wharf.....	C. Boucher.....	Sept. 14, 1911..	95	00
Escoumains, range.....	Saguenay Lumber Co.....	Sept., 1906.....	150	00
Eskimo point range.....	J. F. Boudreault.....	Oct. 3, 1907..	180	00
*Etang du Nord.....	N. Arseneau.....	May 16, 1911..	500	00
Fame point, light and fog alarm.....	H. L. Asch.....	Feb. 1, 1913..	1,260	00
Father point light and fog alarm.....	J. Cahill.....	Mar. 16, 1912..	1,320	00
Ferolle point, fog alarm.....	D. Beaudoin.....	Oct. 19, 1912..	1,080	00
Flat Island.....	D. Renard.....	June 13, 1914..	600	00
Flower Island, light end explosive fog signal.....	J. Lavallée.....	April 12, 1905..	780	00
Great Fox river range.....	T. Dufresne.....	Dec. 1, 1911..	170	00
*Gascons Anse aux.....	J. Ahier.....	Jan. 19, 1914..	85	00
Gaspé, Cape, light and explosive fog signal.....	J. Smith.....	Jan. 20, 1912..	830	00
Godbout range.....	N. A. Comeau.....	Mar. 31, 1910..	140	00
*Goose Cape.....	C. Audet.....	Feb. 13, 1914..	320	00
Grand Entry harbour range.....	A. Turbide.....	Apr. 25, 1907..	180	00
Grande ile, Kamouraska.....	J. Desjardins.....	Aug. 6, 1913..	600	00
Grande Vallée range.....	A. Fournier.....	Oct. 15, 1904..	180	00
Grand Pabos.....	W. McRae.....	June 4, 1912..	90	00
*Grand river.....	W. Bisson.....	Oct. 26, 1896..	220	00
*Grand river wharf.....	D. Boutin.....	Apr. 22, 1912..	90	00
Green island, light and explosive fog signal.....	R. W. Lindsay.....	Sept. 25, 1888..	880	00
Greenly island, light and fog alarm.....	N. Côté.....	Aug. 11, 1908..	1,440	00
Griffin cove range.....	H. Boulet.....	July 4, 1908..	180	00
Grindstone wharf.....	A. Petitpas.....	Dec. 14, 1914..	60	00
Grosse Roche.....	X. Maltais.....	Mar. 28, 1913..	320	00
Heath point, light and explosive fog signal.....	C. Hubert.....	July 27, 1907..	980	00
Hospital rock range.....	V. Lavoie.....	Mar. 22, 1909..	380	00
Janvrin and Paddy shoals.....	K. J. Carter.....	Apr. 6, 1911..	210	00
Loup, rivière du.....	E. Madore.....	Mar. 4, 1913..	105	00

\*25 for operating fog horn or bell.



SESSIONAL PAPER No. 21

STATEMENT of lightstations and names of lightkeepers, etc.—*Continued.*QUEBEC AGENCY—*Continued.*

Name of station.	Name of Lightkeeper.	Appointed.	Salary.	
			\$	cts.
Magdalen cape, light and fog alarm.....	F. J. Sasseville.....	June 9, 1886..	980	00
Magpie bay range.....	A. Dupuis.....	Oct. 22, 1907..	180	00
Mai, Iles de.....	A. Lebel.....	Oct. 30, 1913..	190	00
*Maquereau point.....	Jos. Bertrand.....	June 1, 1914..	380	00
Martre, Rivière à la, light and fog alarm. .	J. L'italien.....	Mar. 5, 1912..	1,080	00
Matane.....	J. Banville.....	Feb. 1, 1897..	520	00
Mairo wharf.....	E. Locobut.....	Sept. 2, 1914..	80	00
Mechanics wharf.....	E. Vineault.....	Dec. 24, 1914..	60	00
Metis, Little.....	E. Caron.....	May 29, 1906..	600	00
Mistook range.....	J. Fleury.....	Feb. 14, 1912..	160	00
Moisie ranges.....	A. St. Louis.....	June 14, 1909..	320	00
Mont Louis range.....	J. Lemieux.....	Jan. 3, 1912..	160	00
Monts, Pointe des, light and explosive fog signal.....	V. Faffard.....	July 10, 1889..	880	00
Moulin, Rivière du (back).....	G. Laberge.....	Aug. 13, 1913..	105	00
Moulin, Rivière du (front).....	G. Tremblay.....	Sept. 9, 1889..	120	00
Natashkwan, Little.....	D. Landry.....	May 13, 1910..	320	00
Natashkwan point.....	W. Landry.....	Sept. 18, 1914..	440	00
*Newport point.....	A. David.....	Jan. 20, 1912..	200	00
New Richmond wharf.....	J. W. Robertson.....	Mar. 19, 1914..	80	00
*Noire, Pointe range.....	J. E. Boulianne.....	Jan. 18, 1904..	320	00
Norman, Cape, light and fog alarm.....	A. W. Campbell.....	July 28, 1911..	1,130	00
Oak point range.....	T. Harper.....	July 24, 1909..	180	00
Orignaux, Pointe aux.....	O. Levesque.....	Dec. 8, 1913..	395	00
*Paspebiac.....	J. Loisel.....	Aug. 27, 1894..	320	00
*Percé.....	F. Bourget.....	Mar. 18, 1893..	260	00
Percé wharf.....	P. Levesque.....	May 6, 1912..	90	00
Peribonka, inner and outer ranges.....	E. Gaudreault.....	June 15, 1912..	240	00
Peribonka, middle range.....	F. C. Frasse.....	May 29, 1912..	130	00
Perroquet island.....	H. Vignaux.....	" 8, 1912..	640	00
*Peter Point.....	W. A. St. Croix.....	Feb. 13, 1914..	520	00
Pilgrim, Long.....	H. Morin.....	April 29, 1898..	600	00
Pipe, Rivière à la.....	A. Morin.....	Oct. 3, 1901..	140	00
Portneuf.....	E. Tremblay.....	May 16, 1903..	520	00
Portneuf range.....	P. Poitras.....	Oct. 24, 1906..	180	00
Quebec harbour range.....	Quebec Harbour Comm'rs.....		60	00
Ray, Cape, light and fog alarm.....	E. H. Rennie.....	Oct. 19, 1884..	1,440	00
Red islet.....	P. T. Fraser.....	April 12, 1890..	780	00
Rich point.....	N. Breton.....	May 16, 1896..	680	00
*Rimouski wharf.....	U. Lavoie.....	Oct. 24, 1906..	100	00
Roberval range.....	Roberval Electric Co.....	June 21, 1898..	100	00
Rosier, Cape, Light and fog alarm.....	E. Costin.....	Nov. 4, 1890..	1,180	00
St. Adelaide de Pabos.....	S. Duguay.....	May 14, 1912..	90	00
St. Alphonse.....	P. Tremblay.....	June 19, 1895..	100	00
Ste. Anne de Beaupré (back).....	G. Paré.....	June 28, 1912..	110	00
Ste. Anne de Beaupré (front).....	J. DeBlois.....	July 4, 1912..	110	00
Ste. Anne des monts range.....	F. Henley.....	Dec. 22, 1911..	170	00
Ste. Anne des monts wharf.....	D. Dugas.....	Oct. 31, 1912..	90	00
St. Antoine (front).....	Jos. Demers.....	Dec. 19, 1914..	120	00
St. Antoine (back).....	G. Demers.....	Dec. 7, 1911..	170	00
St. Charles de Caplan wharf.....	D. Arsenault.....	Temporary.....	80	00
Ste. Croix.....	W. A. Thurber.....	June 28, 1907..	260	00
Ste. Croix (front).....	T. Croteau.....	Mar. 28, 1901..	120	00
Ste. Croix (back).....	Mrs. D. Racette.....	Dec. —, 1890..	120	00
Ste. Famille (back).....	A. Paquet.....	May 17, 1908..	120	00
Ste. Famille (front).....	A. Poulin.....	April 26, 1898..	140	00
Ste. Eélicité fog alarm.....	A. Otis.....	Feb. 1, 1913..	705	00
St. François (front).....	F. X. Lamelin.....	April 11, 1912..	130	00
St. François (back).....	A. Emond.....	July 12, 1913..	125	00
St. François wharf.....	O. Emond.....	Nov. 2, 1912..	90	00
*St. Godfroy wharf.....	J. Joseph.....	May 14, 1912..	90	00
St. Jean.....	A. Laverdière.....	April 10, 1912..	350	00
St. Jean, Anse.....	F. Lavoie.....	Mar. 13, 1889..	100	00

\* \$25 for operating fog horn or bell.



STATEMENT of lightstations and names of lightkeepers, etc.—Continued.

QUEBEC AGENCY—Concluded

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
St. Laurent....	T. Coulombe.....	Dec. 23, 1911..	350 00
St. Mary island.....	Fred Osborn.....	Feb. 27, 1914..	600 00
St. Martin, Poste (front).....	J. Duperré.....	Feb. 14, 1914..	105 00
St. Martin, Poste (back).....	A. Tremblay.....	Feb. 4, 1913..	110 00
St. Omer wharf.....	H. Godbout.....	Feb. 24, 1913..	85 00
Ste, Pétronille.....	N. Ferland.....	Sept. 3, 1901..	320 00
St. Pierre (front).....	A. Asselin.....	Mar. 19, 1912..	110 00
St. Pierre (back).....	J. Roberge.....	May 13, 1908..	120 00
*St. Siméon wharf.....	E. Tremblay.....	Aug. 13, 1912..	90 00
St. Thomas de Montmagny range.....	E. Nicol.....	April 7, 1910..	140 00
Salmon Cape, light and fog alarm.....	L. Bouchard.....	May 16, 1896..	980 00
*Sandy Beach point.....	J. N. Aschah.....	Dec. 2, 1911..	580 00
Seven islands, light and fog alarm.....	H. Demeules.....	July 13, 1909..	1,180 00
Seven islands wharf.....	V. Petitpas.....	Temporary.....	80 00
Simard (back).....	T. Simard.....	May 13, 1913..	105 00
Simard (front).....	H. Simard.....	May 13, 1913..	120 00
Stone Pillar and Algernon rock.....	E. Francœur.....	Feb. 15, 1912..	830 00
Trembles, Pointe aux.....	L. Gauvin.....	Sept. 20, 1913..	180 00
Trois Pistoles wharf.....	D. D'Amours.....	Dec. 21, 1911..	135 00
*Upper Traverse.....	A. Fournier.....	April 14, 1900..	980 00
Valin, River (back).....	G. Lavoie.....	June 7, 1909..	90 00
Valin, River (front).....	M. Lavoie.....	June 7, 1909..	90 00
Verte, Ile, range.....	J. Charron.....	Mar. 1, 1912..	130 00

MONTREAL AGENCY.

Aigle, Ile à l' (front).....	C. Lussier.....	April 16, 1912..	160 00
Aigle, Ile à l' (back).....	O. Beauchemin.....	April 17, 1912..	160 00
Anglais, Pointe aux.....	A. Labrosse.....	July 19, 1912..	290 00
Argenteuil bay range.....	J. Giroux.....	Aug. 6, 1912..	130 00
Ash and Bloody Islands.....	G. L. Robinson.....	Nov. 25, 1912..	320 00
Barques, Ile des.....	J. Lavallée.....	April 30, 1913..	335 00
Barre à Boulard (front).....	N. Daigle.....	May 28, 1904..	320 00
Barre à Boulard (back).....	O. Lemay.....	Aug. 9, 1912..	130 00
Batiscan (back).....	P. St. Arnault.....	June 20, 1912..	130 00
Batiscan (front).....	B. Duval.....	July 27, 1912..	200 00
Batture St. Antoine traverse range.....	A. Colette.....	Nov. 23, 1910..	115 00
Beauharnois range.....	J. Julien.....	Jan. 20, 1912..	290 00
Becancour (front).....	O. Gingras.....	Mar. 15, 1906..	260 00
Becancour (back).....	A. Tourigny.....	Mar. 15, 1906..	180 00
Becquets, St. Pierre les.....	J. Mailly.....	July 3, 1913..	105 00
Bellerive Park range.....	C. Roy.....	Jan. 12, 1905..	260 00
Bellevue, Ste. Anne de.....	E. Filon.....	June 18, 1913..	190 00
Belœil bridge.....	H. Auclair.....	Aug. 20, 1913..	85 00
Black point.....	J. H. Peters.....	June 1, 1891..	100 00
Blondeau, Châte à, range.....	L. Kerr.....	July 27, 1912..	240 00
Bouchard, Pen's, range.....	A. Bouchard.....	Mar. 3, 1914..	180 00
Bouchard, Ile (front).....	Y. Laporte.....	April 21, 1902..	220 00
Bouchard, Ile (back).....	A. Chicoine, jr.....	June 16, 1903..	180 00
Boucherville range.....	H. Carrière.....	Aug. 26, 1903..	140 00
Cadieux, Pointe à.....	S. Poirier.....	May 4, 1904..	260 00
Cardinal traverse range.....	P. Morin.....	Nov. 22, 1910..	115 00
Caron point.....	C. Proulx.....	May 15, 1912..	110 00
Chambly basin range.....	J. de Senneville.....	June 24, 1907..	220 00
Chambly canton range.....	J. Savage.....	July 10, 1907..	220 00
Champlain (front).....	Mrs. A. Chartier.....	July 3, 1912..	130 00
Champlain (back).....	C. Marchand.....	June 21, 1912..	160 00
Champlain, upper (front).....	J. Vézina.....	June 21, 1912..	130 00
Champlain, upper (back).....	O. Lapointe.....	April 10, 1913..	150 00
Charles, Cape (front).....	A. Boisvert.....	July 23, 1901..	140 00
Charles, Cape (back).....	A. Baron.....	June 26, 1901..	140 00

\$25 for operating fog horn or bell.



## SESSIONAL PAPER No. 21

STATEMENT of lightstations and names of lightkeepers, etc.—*Continued.*MONTREAL AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Chene, Pointe au .....	H. Lavoie.....	May 17, 1913..	150 00
Church point traverse St. Antoine (front).....	F. Chagnon .....	Nov. 8, 1913..	52 50
Church point traverse St. Antoine (back).....	P. Chagnon.....	Nov. 8, 1913..	52 50
Citrouille, Pointe.....	L. L'Heureux.....	Mar. 3, 1913..	275 00
Contrecœur course (front).....	J. Arpin .....	April 22, 1904..	140 00
Contrecœur course (back).....	O. Gobeille .....	April 22, 1912..	160 00
Contrecœur Verchères (front) .....	J. B. Gervais .....	May 13, 1912..	200 00
Contrecœur Verchères (back) .....	J. Dupuy .....	Nov. 1, 1912..	200 00
Contrecœur traverse (front) .....	P. Piché.....	April 22, 1912..	160 00
Contrecœur traverse (back).....	A. Lacroix.....	July 26, 1904..	180 00
Deslauriers, Ile (front) .....	J. B. Lozeau .....	May 3, 1912..	200 00
Deslauriers, Ile (back).....	A. Desmarais .....	April 23, 1912..	110 00
Dorval and pointe Claire .....	B. Gloude .....	Sept. 7, 1872..	400 00
Gallia bay, upper range .....	C. Fleury.....	May 24, 1912..	290 00
Gallia bay, lower range.....	J. Cournoyer.....	July 19, 1912..	290 00
Gentilly (front).....	L. Lebœuf.....	Aug. 5, 1912..	290 00
Gentilly (back).....	D. Mailhot.....	April 2, 1907..	220 00
Georgeville .....	O. H. Hutchins.....	June 21, 1913..	85 00
Grace, Ile de (front).....	B. Raquier .....	July 19, 1912..	290 00
Grace, Ile de (back) .....	L. Lavallée .....	May 13, 1912..	160 00
Graham (front).....	A. Bertrand.....	Temporary .....	100 00
Graham (back).....	E. Lavigne.....	Feb. 16, 1911..	95 00
Green shoal .....	A. Laberge .....	May 20, 1902..	260 00
Grenville ranges .....	W. Davison.....	Mar. 29, 1910..	260 00
Grondines (upper front).....	A. Rivard.....	Nov. 25, 1912..	240 00
Grondines (upper back).....	O. Rivard.....	Sept. 24, 1912..	160 00
Grondines point (front).....	H. Rivard.....	Aug. 30, 1912..	350 00
Grondines point (back).....	F. Hamelin .....	June 21, 1912..	160 00
Hebert point .....	N. Hebert .....	Sept. 30, 1910..	115 00
Hochelaga range.....	U. Paquette.....	Sept. 1, 1910..	260 00
Jones island.....	J. Charlebois.....	April 22, 1909..	140 00
La Bel Isle, range (front).....	J. O. Lachapelle .....	April 20, 1914..	220 00
La Bel Isle, range (back).....	E. Thouin.....	April 27, 1914..	230 00
Lachine ranges.....	A. Lizotte, jr.....	April 27, 1910..	320 00
Lacolle range.....	W. G. Whitman.....	Jan. 18, 1904..	220 00
Lac, Pointe du (front) .....	C. Bourassa.....	June 25, 1913..	335 00
Lac, Pointe du (back) .....	S. Paquin.....	May 2, 1900..	180 00
Langlois pointe.....	A. Langlois.....	July 11, 1888..	220 00
Laperle traverse range.....	A. Laperle.....	Aug. 7, 1912..	110 00
Lavaltrie range.....	J. O. Martineau.....	Jan. 20, 1912..	350 00
Lead Mines.....	W. Wheeler.....	June 1, 1891..	100 00
Longue pointe traverse range.....	A. Valiquette.....	Mar. 10, 1910..	220 00
Lotbinière (front).....	Mrs. L. Beaudet.....	Sept. 3, 1903..	140 00
Lotbinière (back).....	M. Moraud.....	June 19, 1913..	125 00
Louiseville range.....	O. Plante .....	April 19, 1907..	220 00
McTavish point.....	J. Campbell.....	Nov. 18, 1896..	180 00
Madeleine, Cap, lower range (front) .....	M. Hébert.....	May 11, 1888..	140 00
Madeleine, Cap, lower range (back).....	T. Arcand .....	June 21, 1912..	160 00
Madeleine, Cap, upper range (front) .....	D. Montplasier.....	June 21, 1912..	130 00
Madeleine, Cap, upper range (back).....	L. Loranger.....	June 21, 1912..	160 00
Madeleine, Cap, village (back).....	T. Rocheleau.....	Aug. 8, 1912..	130 00
Madeleine, Cap, village (front).....	I. De Grandmont.....	Aug. 8, 1912..	130 00
Marcotte traverse range .....	F. Marcotte.....	Oct. 18, 1910..	115 00
Meule, Pointe à la, range.....	D. Menard.....	May 3, 1912..	240 00
Moine, Ile du (front).....	N. Salvail.....	May 15, 1912..	160 00
Moine, Ile du (back).....	P. Salvail.....	May 29, 1912..	200 00
Molson island.....	Miss E. G. Molson.....		140 00
Mosseau Range.....	J. B. Giguere.....	Mar. 23, 1914..	260 00
Nicolet (front).....	D. Héroux.....	Dec. 5, 1906..	320 00
Nicolet (back).....	E. Héroux.....	Dec. 5, 1906..	180 00
Oka.....	A. Lacroix.....	July 24, 1912..	130 00
Oka wharf.....	T. Hamelin.....	July 23, 1912..	90 00
Pads, Ile du, range.....	P. Dandonneault .....	July 19, 1912..	350 00
Papineauville Range .....	J. Chabot.....	June 17, 1897..	180 00
Perrot, Ile, range .....	O. D'Anjou.....	Sept. 15, 1913..	150 00



STATEMENT of lightstations and names of lightkeepers, etc.—Continued.

MONTREAL AGENCY—Concluded.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Petite, Ile course range.....	J. Paré ..	Aug. 7, 1912..	110 00
Petite traverse (front).....	E. Lavigne...	April 22, 1912..	130 00
Petite traverse (back) .....	H. Jussaume.....	April 22, 1912..	160 00
Platon range.....	C. Beaudet.....	Aug. 24, 1904..	220 00
Portneuf range.....	E. Paradis.....	April 10, 1912..	350 00
Raisins, Ile aux, range.....	L. Verville.....	May 13, 1912..	350 00
Repentigny (front).....	A. Payette.....	Feb. 4, 1913	125 00
Repentigny (back).....	L. L. Rivet.....	April 28, 1894..	140 00
Richelieu.....	J. Auger ..	July 14, 1908..	220 00
Rigaud.....	O. Mallette.....	April 7, 1910..	220 00
Ronde, Ile (front).....	H. Charland.....	Aug. 1, 1907..	500 00
Ronde, Ile (back).....	J. B. Jodin...	May 2, 1913..	335 00
Rosalie, Ile.....	A. Seguin.....	Oct. 29, 1912..	230 00
Ste. Anne lock.....	C. Duquette.....	Mar. 4, 1914..	150 00
Ste. Anne de Sorel (front).....	M. Razotte.....	May 10, 1912	130 00
Ste. Anne de Sorel (back).....	M. Latraverse.....	May 10, 1912..	160 00
St. Charles point.....	A. Messier.....	Sept. 30, 1910..	115 00
St. Denis float light .....	A. Bourgeois.....	Aug. 9, 1913..	125 00
Ste. Emmelie (front) .....	J. B. Gaudet.....	Jan. 9, 1911..	135 00
Ste. Emmelie (back) .....	E. Filtreau.....	Mar. 16, 1905..	140 00
St. Francis, Port, range.....	F. Proulx.....	July 5, 1912..	350 00
St. Francis river range.....	P. Descheneau .....	Mar. 21, 1912..	240 00
St. Jean .....	E. Menard.....	Feb. 15, 1909..	220 00
St. Mark point.....	V. Ducharme, jr.....	April 23, 1912..	110 00
St. Onge traverse range.....	A. Larivière.....	Nov 22, 1910..	115 00
St. Ours traverse, Ile (front).....	G. Fortin.....	May 13, 1912..	200 00
St. Ours traverse, Ile (back)....	A. Gaudette .....	Oct. 24, 1908..	180 00
Ste. Ours locks (back).....	Z. Millette.....	May 4, 1914..	50 00
Ste. Ours locks (front).....	J. Cournoyer.....	May 4, 1914..	50 00
Ste. Sulpice course (front).....	Z. Plouffe.....	Feb. 23, 1914..	120 00
Ste. Sulpice course (back).....	O. Peltier .....	Feb. 23, 1914..	140 00
Ste. Sulpice traverse (front).....	A. Payette.....	Feb. 23, 1914..	120 00
Ste. Sulpice traverse (back).....	H. Dupis .....	Feb. 23, 1914..	140 00
St. Peter, Lake (front).....	L. A. Lamy.....	Jan. 28, 1914..	325 00
St. Peter, Lake (back, down range)....	J. Lefevre.....	May 11, 1911..	365 00
St. Peter, Lake (back, up range).....	Arthur Paquin.....	Nov. 7, 1913..	335 00
St. Placide.....	H. Dubreuil.....	July 19, 1912..	240 00
St. Roch range.....	P. Mathieu.....	July 25, 1913..	105 00
Ste. Thérèse, upper range (front).....	J. Poitras.....	Aug. 2, 1913..	190 00
Ste. Thérèse, upper range (back).....	A. Durochers .....	Aug. 2, 1913..	150 00
Ste. Thérèse, lower range.....	J. Malo.....	Feb. 1, 1897..	220 00
St. Valentin range.....	A. Martin.....	June 30, 1909..	220 00
Sorel range.....	Richelieu & Ontario Naviga- tion Co.....	Sept. 6, 1854..	85 00
Petreauville range .....	A. David.....	Nov. 18, 1911	210 00
Three Rivers range.....	J. Bellefeuille.....	Temporary.....	180 00
Varembes .....	W. Hébert.....	April 17, 1912..	110 00
Verchères traverse (front) .....	E. Dansereau .....	April 13, 1912..	130 00
Verchères traverse (back).....	P. Charbonneau.....	April 21, 1912..	120 00
Verchères village (front).....	J. Guvon .....	April 21, 1902..	140 00
Verchères village (back).....	A. St. Pierre .....	Aug. 25, 1914..	100 00
Wadleigh point.....	J. A. Patterson.....	June 1, 1891..	100 00
Way channel and Besserer crossing .....	M. Beauchamp .....	Nov. 20, 1906..	260 00
Way Shoal traverse.....	M. V. Proulx.....	Oct. 10, 1912..	130 00
Windmill Point traverse range.....	O. Phaneuf .....	April 23, 1912..	110 00
Witch shoal.....	D. E. Peters.....	June 1, 1891..	260 00

ONTARIO.

Allumette island.....	J. Cox.....	June 12, 1887..	180 00
Allumette lake.....	J. T. Manders.....	Sept. 17, 1907..	180 00
Arnprior island.....	W. Kilroy.....	Sept. 27, 1905..	260 00



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STATEMENT of lightstations and names of lightkeepers, etc.—*Continued.*ONTARIO—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.	
			\$	cts.
* Arthur, Port.....	J. C. Banks.....	Dec. 11, 1908..	520	00
Aylmer island .....	F. Boucher.....	Nov. 17, 1882..	260	00
Badgeley island range.....	O. Proulx.....	Feb. 3, 1912..	410	00
Barriefield common range .....	W. Murray.....	May 17, 1900..	260	00
Baril, Point au range .....	O. Hanson.....	July 10, 1907..	440	00
* Baskins wharf range.....	S. Sullivan.....	Dec. 22, 1896..	220	00
Battle island.....	E. McKay.....	April 4, 1913..	630	00
Baymouth, South range.....	J. A. Ritchie.....	Sept. 10, 1903..	220	00
Belleville.....	H. J. Smith.....	April 27, 1912..	290	00
Bishops bay range.....	C. Flett.....	Nov. 7, 1913..	230	00
Blind river range .....	W. H. McGauley .....	Jan. 5, 1909..	60	00
Blind river, Eddy wharf range.....	Eddy Bros.....	Oct. 27, 1905..	60	00
Bois Blanc.....	C. R. Hackett .....	April 27, 1910..	600	00
Boyd island. ....	Mrs. Eliz. Martin.....	Jan. 6, 1905..	380	00
Breboeuf range.....	W. J. Baxter.....	Nov. 23, 1885..	440	00
Brighton (3 lights) ..	H. V. Simpson.....	May 11, 1888..	520	00
* Bronte.....	C. Osborne.....	Dec. 7, 1906..	260	00
Bruce Mines.....	W. Fleming.....	Mar. 31, 1909..	100	00
Buckom point .....	A. Ouellette .....	Feb. 22, 1913..	230	00
Burlington bay, lights and fog alarm.....	T. Lundy.....	May 2, 1905..	780	00
Burnt island.....	J. A. Acton.....	May 24, 1912..	380	00
* Burwell, Port (3 lights) ..	J. Sutherland.....	June 18, 1894..	520	00
* Byng inlet (3 lights).....	L. Lamondin.....	July 30, 1901..	520	00
Cabot Head, light and fog alarm .....	L. Martindale .....	June 15, 1912..	1,080	00
Campbell island.....	R. Wilson .....	July 6, 1905..	260	00
Caribou Island, light and fog alarm .....	J. W. Johnston.....	May 3, 1912..	1,320	00
Cecebe lake .....	R. Nicholson.....	Feb. 12, 1912..	290	00
Centre Bro. island .....	J. Miller.....	Oct. 30, 1913..	275	00
Chantry island.....	M. McIver.....	Feb. 16, 1907..	680	00
Chenal Ecarte range .....	P. Willis.....	Dec. 3, 1908..	180	00
* Christian Island.....	Thos. Marchildon.....	Nov. 1, 1914..	6	00
* Clapperton island.....	H. F. Baker.....	Dec. 2, 1895..	440	00
Clark, Point.....	G. H. Roy.....	Feb. 27, 1914..	520	00
Cobourg, fog alarm engineer.....	J. Lavis.....	Aug. 1, 1910..	400	00
Colborne, Port, lights and fog alarm .....	H. Clark, Jr.....	May 30, 1904..	1,180	00
Colborne, Port, east breakwater .....	J. Madden.....	May 22, 1911..	365	00
* Colchester reef.....	F. Malott.....	March 31, 1911..	955	00
Coal shoal.....	R. P. Boyd.....	April 9, 1884..	380	00
* Collingwood ranges.....	J. Wilde.....	Feb. 24, 1912..	480	00
Coppermine point.....	F. E. Roussain.....	Oct. 10, 1910..	220	00
* Corbeil point.....	J. Davieux.....	May 27, 1890..	440	00
Corunna range .....	W. J. Scott.....	April 23, 1901..	220	00
Coulange lake .....	E. Bertrand.....	July 16, 1908..	180	00
Cove island, light and fog alarm .....	W. J. Simpson.....	July 5, 1912..	1,180	00
Credit, Port .....	J. Miller.....	Dec. 16, 1897..	260	00
Croker, Cape, light and fog alarm.....	W. Chapman.....	April 27, 1910..	1,180	00
Current, Little (3 lights).....	I. Allan (temporary).....	April 19, 1913..	395	00
Dalhousie, Port, light and fog alarm.....	G. Houston.....	May 3, 1912..	730	00
Darlington.....	Port Darlington Co.....	..... 1886..	100	00
Deep River islet.....	J. Beauchamp.....	March 3, 1908..	180	00
Deseronto.....	Canadian Northern Railway.....	June 6, 1914..	200	00
Dover, Port range.....	S. L. Butler.....	July 15, 1897..	440	00
Duck island, Great, light and fog alarm.....	N. R. Smith.....	Nov. 25, 1912..	1,080	00
Edward, Point, range.....	L. Knauff.....	May 23, 1908..	260	00
Elgin, Port, ranges .....	R. M. Lowry.....	Mar. 14, 1896..	220	00
False Ducks, light and fog alarm.....	J. W. Hudgin.....	May 3, 1912..	930	00
Ferris island.....	J. Morriseau.....	Mar. 24, 1898..	320	00
Flowerpot island, light and fog alarm.....	W. J. Spears.....	June 15, 1912..	930	00
Fort William, Ottawa river.....	C. L. McCool.....	May 17, 1911..	120	00
Fox island.....	Moses Emes.....	Dec. 10, 1912..	275	00
Frenchman bay.....	W. O'Brien.....	April 14, 1904..	220	00
* French river, and Bustard rocks, ranges.....	Mrs E. B. Borron.....	Jan. 30, 1903..	680	00
Gananoque narrows.....	Thomas Glover.....	Feb. 3, 1914..	380	00
Jackstraw shoal.....				

\$25 for operating fog horn or bell.



STATEMENT of lightstations and names of lightkeepers, etc.—Continued.

ONTARIO—Continued.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
*Gargantua.....	G. Miron.....	April 27, 1912..	560 00
Giants Tomb.....	A. H. Griffith.....	Sept. 17, 1898..	380 00
Gibraltar point.....	B. Mathews.....	" 28, 1912..	410 00
Goderich (3 lights).....	W. Robinson.....	April 12, 1911..	580 00
Goderich beacon.....	W. Robinson.....	" 12, 1911..	50 00
Goderich fog alarm.....	Bert McDonald (temporary).....		380 00
*Gore Bay.....	R. Lewis.....	April 18, 1913..	395 00
*Gravenhurst narrows.....	I. Barnes.....	Mar. 20, 1906 ..	180 00
Grenadier Island.....	D. Root.....	Nov. 30, 1908..	320 00
*Griffith island.....	W. S. Boyd.....	May 14, 1889..	600 00
Hog island.....	A. Greenwood.....	April 25, 1912..	130 00
Hope island, light and fog alarm.....	J. B. Dewell.....	Oct. 24, 1914..	555 00
Jackfish bay.....	J. Stewart (engineer).....	May 4, 1914..	625 00
Kagawong.....	B. Almos.....	Oct. 1, 1907..	100 00
Kaministiquia.....	W. M. Boyd.....	April 13, 1893..	120 00
*Killarney, E. and W.....	J. Armstrong.....	" 28, 1894 ..	380 00
Kincardine range.....	J. Burke.....	July 5, 1912..	410 00
Kingsville range.....	W. G. Temple.....	April 30, 1913..	520 00
*Knapp point.....	W. H. Black.....	July 27, 1902..	260 00
Knight point (4 lights).....	W. W. Card.....	April 10, 1912..	240 00
*Lamb island.....	W. Shannon.....	Oct. 24, 1914..	520 00
*Lancaster pier and bar.....	A. Alexander.....	April 26, 1897..	680 00
Leamington.....	J. J. Munroe.....	June 8, 1892..	520 00
Limekiln crossing range.....	F. H. C. Canover.....	April 24, 1883..	260 00
Lindoe island.....	S. Pettypiece.....	May 11, 1888..	380 00
Lionhead.....	J. G. Wallace.....	" 24, 1912..	380 00
*Lonely island.....	P. W. Brady.....	Sept. 14, 1912..	90 00
Long point, E. E., light and fog alarm.....	Louis Roques.....	Nov. 28, 1914..	780 00
Long point, W. E.....	S. B. Cooke.....	June 9, 1897..	1,180 00
Lower narrows.....	F. E. Mason.....	June 3, 1901..	600 00
Lyal island.....	J. B. LeBlanc.....	Jan. 4, 1904..	180 00
McKay island.....	J. McKay.....	Oct. 27, 1884..	680 00
McNicoll range.....	J. Harvey.....	July 10, 1907..	380 00
McQuestion point.....	J. Beatty.....	Aug. 2, 1913..	275 00
McKee point.....	Mrs. E. McLeod.....	Feb. 22, 1904..	180 00
Main Duck island.....	Dosithée Daoust.....	Sept. 21, 1893..	260 00
Martin island.....	Fred Bongard.....	Temporary.....	600 00
*Maitland, Port, range.....	Victor Robinson.....	June 4, 1915..	75 00
Manitowaning.....	Mrs. J. Grant.....	June 19, 1907..	440 00
Meaford.....	J. J. Morrow.....	May 3, 1912..	200 00
*Michipicoten harbour.....	S. Dutcher.....	May 7, 1877..	260 00
*Michipicoten and Agate island.....	W. T. Richardson.....	Sept. 27, 1900..	380 00
Michipicoten island, E. E.....	C. Davieux.....	June 29, 1910..	600 00
Middle island.....	Wm. Sherlock.....	Feb. 5, 1912..	640 00
Midland point, range.....	W. K. Wilson.....	Apr. 7, 1914..	440 00
Mississagi island.....	T. Williams.....	July 19, 1912..	290 00
Mississagi strait, light and fog alarm.....	L. D. McDonald.....	May 16, 1896..	600 00
Mitchell bay range.....	W. A. Grant.....	Mar. 3, 1913..	1,030 00
Mohawk island.....	S. MacDonald.....	Feb. 22, 1912..	160 00
Morris island.....	R. O. Smithers.....	Mar. 3, 1896..	600 00
*Narrow island.....	A. Coburn.....	April 10, 1912..	200 00
Niagara-on-the-lake, lights and fog alarm.....	A. B. Boyter.....	Jan. 3, 1898 ..	380 00
Nigger island.....	R. J. Allen, (lightkeeper).....	July 19, 1907..	260 00
Ninemile point, light and fog alarm.....	J. W. McMillan, (engineer).....	Nov. 30, 1910..	600 00
*Nottawataga island.....	C. Jeffrey.....	Apr. 28, 1894..	320 00
Oakville.....	S. Veech.....	Mar. 7, 1894..	980 00
Onderdonk point.....	Mrs. McNabb, (temporary).....		620 00
*Otter island.....	M. Felan.....	April 28, 1894..	260 00
Owen Sound, range.....	W. Allison.....	April 15, 1912..	160 00
Parisian island, light and fog alarm.....	R. McMenemy.....	Nov. 17, 1903..	600 00
Pelee passage, light and fog alarm.....	A. Robertson.....	Oct. 30, 1903..	275 00
	J. Douglas (temporary).....		1,080 00
	Robert McCormick.....	Feb. 3, 1914..	630 00
	J. Ouellette (stl assistant).....	Oct. 6, 1911..	510 00
	Geo. Simpson (2nd assistant).....	July, 5, 1912..	310 00

\* \$25 for operating fog horn or bell.



## SESSIONAL PAPER No. 21

STATEMENT of lightstations and names of lightkeepers, etc.—*Continued.*  
ONTARIO *Concluded.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Penetanguishene and Whisky island.....	C. Columbus.....	Mars 18, 1893..	140 00
*Peninsula harbour.....	J. Blondin.....	Oct. 14, 1910..	680 00
Peter point, light and fog alarm.....	T. A. Farrington.....	Jan. 25, 1913..	930 00
Peter rock.....	S. Nichols.....	Nov. 7, 1913..	620 00
*Pie island.....	J. Vernon.....	Mars 9, 1912..	350 00
*Pigeon island.....	J. H. Davis.....	May, 16, 1896..	680 00
Pins, Pointe aux (3 lights).....	A. McKinnon.....	May 16, 1904..	520 00
Peasant, point.....	S. C. Carson.....	April 18, 1913..	395 00
Porphyry, point, light and fog alarm.....	J. Bosquet.....	Aug. 11, 1908..	1,130 00
Portsmouth range.....	E. Graham.....	April 27, 1912..	240 00
Presqu'île light and fog alarm.....	F. T. Cornwall, (lightkeeper).....	May 24, 1912..	380 00
	H. C. McColl, (engineer)....	Feb. 27, 1914..	600 00
*Providence bay.....	T. E. Ellis.....	June 15, 1912..	350 00
Rains wharf.....	W. W. Rains.....	Aug. — 1892..	140 00
Rainy river.....	P. O'Connor.....	July 27, 1904..	380 00
Red Horse rock.....	A. Meggs.....	May 24, 1912..	410 00
Spectacle shoal.....	A. Brown.....	June 2, 1909..	905 00
*Red rock, light and log alarm.....	J. Burnside.....	April 3, 1912..	90 00
Richards landing.....	N. Matheson.....	Oct. 7, 1896..	440 00
Robert, Cape.....	Jas Claus.....	Oct. 30, 1913..	50 00
*Rondeau, Beacon.....	J. Claus.....	Oct. 30, 1913..	460 00
*Rondeau, range.....	J. G. Dixon.....	July 21, 1890..	180 00
Rosseau.....	A. M. Rains.....	Aug. — 1892..	180 00
Sailors Encampment, range.....	D. McKillop.....	June 8, 1892..	380 00
*St. Anicet.....	P. McLean.....	May 1, 1909..	100 00
Sand point.....	A. McAulay.....	Aug. 30, 1909..	220 00
Saugeen, range.....	B. Y. Cunningham.....	May, 9, 1912..	480 00
*Scotch Bonnet.....	W. Fairael.....	May, 24, 1912..	350 00
*Shaganash.....	J. Heis.....	April 12, 1912..	160 00
Shegniandah, range.....	J. L. McCluskie.....	Sept. 11, 1909..	380 00
*Shoal island.....	J. Cross.....	May 18, 1905..	180 00
Silver islet, range.....	J. Thibault.....	Dec. 6, 1905..	520 00
*Sister Rock, west.....	A. B. Sutherland.....	July 21, 1908..	680 00
*Slate islands.....	C. V. Sudds.....	Mar. 16, 1912..	290 00
*Snake island.....	J. Brown.....	June 29, 1904..	260 00
Southampton.....	W. Hudgins.....	June 15, 1912..	290 00
South Bay point.....	T. V. Darling, temporary.....		140 00
South East bay.....	James Floyd.....	Feb. 13, 1913..	220 00
South river.....	W. H. Boucha.....	Oct. 30, 1913..	290 00
Squaw island.....	T. M. Cowan.....	Nov. 3, 1903..	260 00
*Stag island.....	J. L. Oliver.....	Jan. 8, 1908..	600 00
Stanley, Port, light and fog alarm.....	J. L. Oliver.....	Aug. 6, 1909..	50 00
Stanley, Port, beacon.....	J. McIver.....	Oct. 30, 1913..	395 00
Stokes bay, range.....	W. McKenzie.....	May 4, 1893..	440 00
*Strawberry island.....	J. Hicks.....	April 10, 1912..	290 00
Stribling point, range.....	W. Birch.....	Aug. 1, 1910..	440 00
Sulphur island.....	C. J. Kelly.....	Oct. 6, 1909..	180 00
Supple point.....	M. Benn.....	Dec. 10, 1912..	290 00
Telegraph island.....	H. J. Cartier.....	Oct. 19, 1884..	520 00
Thames island, range.....	J. Harvey.....	Nov. 23, 1897..	440 00
*Thessalon.....	R. Lowe.....	April 12, 1887..	140 00
Thornbury, range.....	T. Craig.....	Nov. 27, 1913..	1,030 00
Thunder cape, light and fog alarm.....	J. H. Smith.....	April 10 1912..	290 00
*Tobermory.....	J. R. Atkinson, (temporary).....		260 00
Tomahawk island.....	G. McKelvie.....	Aug. 1, 1907..	1,180 00
Toronto, east pier, lights and fog alarm.....	F. Ward.....	Sept. 28, 1912..	410 00
*Toronto west entrance.....	J. A. McHenry.....	June 5, 1912..	200 00
Trenton, range.....	R. Belcher.....	Aug. 5, 1912..	200 00
Victoria harbour, range.....	J. G. Penfold.....	May 4, 1914..	440 00
*Victoria island.....	J. C. Chapman.....	May 4, 1914..	260 00
Wabi river.....	Geo. Cosgrave.....	April 30, 1913..	980 00
Welcome islands, light and fog alarm.....	E. Smith.....	Aug. 25, 1913..	1,130 00
Western islands, light and fog alarm.....	R. Goldring.....	Dec. 2, 1911..	210 00
Whitby.....	E. Shakleton.....	Aug. 13, 1913..	85 00
Wiarton.....	A. A. Clarke.....	May 18, 1914..	380 00
Wilson channel, range.....	W. Gillespie.....	Mar. 16, 1885..	320 00
Wolfe island.....			

\* \$25 for operating fog horn or bell.



STATEMENT of lightstations and names of lightkeepers, etc.—Continued.

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Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
*Black Bear, island.	D. Matheson	June 22, 1899.	380 00
*Cox Reef.	A. Anderson	June 2, 1913.	460 00
*George island.	E. Arrason	Aug. 26, 1912.	480 00
Gimli.	K. Sammundsson.	April 9, 1912.	90 00
*Gull harbour.	T. Fjeldsted.	May 6, 1904.	320 00
Red river range.	Wm. Hughes.	Feb. 12, 1892.	520 00
Warren Landing ranges.	H. McDonald.	Sept. 14, 1907.	520 00

BRITISH COLUMBIA.

* Addenbrook.	W. G. Guthro.	Mar. 23, 1914.	660 00
Active pass, light and fog alarm.	H. Georgeson	July 21, 1884.	1,470 00
Alberni.	W. A. McIntosh	Aug. 25, 1913.	180 00
Amphitrite point, Veluelet life saving station.		Dec. 7, 1914.	390 00
Atkinson point, light and fog alarm.	T. D. Grafton	April 9, 1910.	1,470 00
Ballenas islands, light and fog alarm.	A. B. Gurney.	Dec. 10, 1912.	1,170 00
Bare point.	J. C. Chalmers.	Aug. 5, 1912.	300 00
Beale Cape, light and fog alarm.	Harold Ward	Jan. 28, 1914.	1,545 00
* Berens island.	W. H. Harrison	Oct. 29, 1912.	472 50
Birnie island.	G. Rudge	June 30, 1906.	390 00
* Brocton point.	W. D. Jones	Aug. 20, 1890.	607 50
Carmanah, light and fog alarm.	R. S. Daykin	Dec. 8, 1913.	1,600 00
Crofton.	H. Carter	Jan. 10, 1913.	240 00
Denman island.	H. Piercy	May 16, 1911.	547 50
Discovery island, light and fog alarm.	M. A. Croft	April 1, 1902.	1,470 00
* Dryad point.	C. Carpenter	Dec. 4, 1899.	517 50
Egg island, light and fog alarm.	L. D. B. Drummond	Oct. 30, 1913.	1,470 00
Entrance island, light and fog alarm.	W. E. Morrissey	June 2, 1913.	1,357 50
Estevan point, light and fog alarm.	J. P. Jensen	May 27, 1910.	2,000 00
* Fiddle reef.	D. H. McNeil.	Mar. 21, 1905.	570 00
* First narrows, light and fog alarm.	G. A. Harris.	June 25, 1913.	1,357 50
Fisgard.	J. Goose	Oct. 13, 1909.	570 00
Fraser river, North arm range.	T. J. Thomas	Mar. 21, 1913.	345 00
Fraser river and Garry point	A. A. Parker	Oct. 14, 1907.	570 00
Fraser river lightship.	M. O'Brien	Sept. 26, 1906.	1,620 00
Gallows point fog bell.	Western Fuel Co.	June 8, 1906.	120 00
Green island.	A. Dingwall	Feb. 11, 1911.	1,433 50
Helen point fog bell.	D. Tom	Mar. 2, 1910.	240 00
Holland rock, light and fog alarm.	W. L. Howell	April 19, 1915.	1,320 00
Ivory island, light and fog alarm.	F. Reuter.	May 2, 1905.	1,170 00
Kaslo	Kootenay Electric Co.		240 00
Kootenay lake, west arm.	C. W. Burke		900 00
Kootenay lake, west arm.	H. A. Master		900 00
Kootenay Landing	Canadian Pacific Ry. Co.	April 10, 1909.	120 00
Kootenay ranges.	R. Janett		360 00
Langara, light and fog alarm	J. Forsyth.	Oct. 30, 1913.	2,000 00
Lardo	Canadian Pacific Ry. Co.	Mar. 19, 1910.	120 00
Lawyer islands, light and fog alarm.	F. W. B. Elsterman.	Oct. 26, 1905.	780 00
Lennard island	R. Pollock.	July 21, 1908.	2,000 00
Lookout island.	A. Ellis.	Dec. 1, 1906.	390 00
* Lucy island	J. S. O. Ouellette	July 6, 1910.	817 50
Masset range.	Henry Weah	Sept. 5, 1913.	412 50
Merry island.	W. T. Franklin	Jan. 8, 1904.	570 00
Meares spit.	R. Riley		200 00
McCormick point.	O. B. Ballard		216 00
McLoughlin point, fog alarm	W. P. Daykin	July 4, 1912.	1,470 00
Mudge cape, light and fog alarm.	J. Davidson.	June 27, 1898.	1,170 00
Nanaimo harbour.	G. C. Anderson	Jan. 30, 1915.	270 00
Needles point.	F. B. Lucas		228 00
Nootka.	H. T. W. Smith.	Feb. 11, 1911.	547 50
Pachena, light and fog alarm	R. Clarke.	April 8, 1913.	1,775 00

\* \$37.50 for operating fog horn or bell.



## SESSIONAL PAPER No. 21

STATEMENT of lightstations and names of lightkeepers, etc.—*Concluded.*BRITISH COLUMBIA—*Concluded.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Patey rock.....	H. Moore.....	Jan. 27, 1911..	270 00
Pilot bay.....	E. Montreuil.....	Dec. 10, 1907..	570 00
Pine island, light and fog alarm.....	D. B. McPhee .. .	Jan. 7, 1913..	1,630 00
* Pointer island.....	J. Codville .....	Oct. 24, 1900..	607 50
* Porlier pass range .....	F. F. Allison. ....	April 14, 1903..	697 50
* Portlock point.....	G. A. Watson.....	April 12, 1911..	675 00
Proctor range.....	J. W. Gallop.....	April 20, 1900..	600 00
* Prospect point.....	J. Grove.....	July 7, 1898..	607 50
* Pulteney point .....	T. Aro .....	Nov. 14, 1913..	540 00
* Quatsino.....	N. C. Nelson.....	Dec. 6, 1910 ..	607 50
Race rocks, light and fog alarm.....	F. M. Eastwood.....	Jan. 31, 1891..	1,770 00
St. James cape.....	L. Thompson .....	Dec. 24, 1914..	1,320 00
Saturna Island.....	J. Georgeson .....	Oct. 26, 1889..	900 00
* Scarlett point .....	W. Hunt .....	Sept. 24, 1908..	607 50
Shark spit.....	W. H. Robertson.....	Nov. 4, 1914..	180 00
Sheringham point.....	E. T. Arden .....	Aug. 30, 1912..	1,395 00
Silverton .....	Denver Light & Power Co..	.....	24 00
Sisters light and fog alarm.....	T. C. L. Hayllar .....	Dec. 10, 1912..	1,095 00
Stubbs spit.....	R. Riley.....	.....	200 00
Swale rock.....	J. C. Anderson.....	May 2, 1912..	225 00
Trial island, light and fog alarm.....	H. S. O'Kell.....	Oct. 24, 1906..	1,470 00
* Triangle island.....	T. Watkins .....	Mar. 28, 1913..	1,357 50
Whiffen spit.....	P. H. Stuhr.....	Aug. 12, 1913..	187 50
Wilson point.....	J. A. Irwin.....	.....	180 00
Victoria harbour beacons.....	T. Sparks.....	Jan. 1, 1903..	234 00
Yellow island, lights and fog alarm .....	James Street.....	Dec. 24, 1914..	1,020 00

\$37.50 for operating fog horn or bell.



Enclosure No. 3.

STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion.

UNDER THE NOVA SCOTIA AGENCY—DISTRICT No. 1.

Station No.	Name of Station.	Description of Buoy.
24	Pubnino .....	Gas and whistling.
27	Cape Sable, southwest ledge.....	"
29	Brazil Rock .....	"
32	Shelburne .....	"
35	Lockeport.....	"
36	Laurier rock .....	Gas and bell.
37	Little Hope ..	Gas and whistling.
39	Liverpool.....	"
40	Liverpool fairway.....	Gas and bell.
45	Lahave .....	"
48	Lunenburg.....	Gas and whistling.
49	Lunenburg, east point ledge.....	Gas and bell.
50	Sculpin shoal .....	"
54	North east shoal.....	Gas and whistling.
60	Sambro.....	"
61	Outer Automatic, Halifax Harbour.....	"
62	Inner Automatic, Halifax Harbour ..	"
63	Neverfail, Halifax Harbour .....	Gas.
64	Lighthouse bank.....	Gas and bell.
65	Thrumcap.....	"
66	Ives Knoll .....	"
67	Middle Ground, Halifax harbour.....	Gas.
68	Leopard shoal .....	"
69	Shut-in-island .....	Gas and bell.
70	Egg island .....	Gas and whistling.
72	Sheet harbour .....	"
76	Liscomb.....	"
80	Isaac harbour.....	"
84	Whitehead .....	"
86	Canso or Grime shoal.....	"
90	Cerberus rock.....	"
94	Petitdegrat .....	Gas and bell.
100	Guion island.....	Gas and whistling.
102	Louisburg.....	"
108	Flat point.....	"
110	Cran rock .....	Gas and bell.
112	North-west bar, Sydney harbour.....	Gas.
117	Seal reefs .....	"
130	Skinner reef.....	"

UNDER THE NEW BRUNSWICK AGENCY—DISTRICT No. 2.

4-S.	Blonde rock .....	Gas and whistling.
6-S.	South-west fairway, Yarmouth ..	"
8-S.	Cape Fourchu .....	"
10-S.	Hen-and-chickens, Yarmouth.....	Gas and bell.
12-S.	South west ledge, Brier island.....	Gas and whistling.
14-S.	North west ledge, Brier island .....	"
16-S.	Avon river .....	Gas.
3	Old Proprietor .....	Gas and whistling.
5	North Wolves .....	"
7	Lepreau ..	"
9	Black point.....	"
18	Foul ground, St. John harbour.....	Gas.
20	Quaco ledge .....	Gas and whistling.
22	Trinity ledge.....	"
23	Beacon bar .....	Gas and bell.
24	Letite passage .....	"
28	Maquacha spit, Restigouche river.....	Gas.
31	Scaumenac, Restigouche river .....	"
32	Point Lanin, Restigouche river.....	"



## SESSIONAL PAPER No. 21

STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion.—*Continued.*

UNDER THE NEW BRUNSWICK AGENCY—DISTRICT No. 2—*Concluded.*

Station No.	Name of Station.	Description of Buoy.
34	Garde pointe, Restigouche river.....	Gas.
36	Oak point, Restigouche river .....	"
38	Traverse, Restigouche river .....	"
40	Busteed, Restigouche river.....	"
42	Horseshoe bar east, Miramichi.....	"
44	Horseshoe bar west, Miramichi river .....	"
46	Caraquet harbour, east.....	"
47	Caraquet harbour, west .....	"

## UNDER THE PRINCE EDWARD ISLAND AGENCY—DISTRICT No. 3.

1	Indian Rocks. ....	Gas and whistling.
2	Point Prim. ....	"
3	Fitzroy rock.....	"
4	West point.....	"
5	Mischouche shoal.....	"
6	Zephyr rock, Shediac bay, N.B.....	Gas.
7	Carleton point.....	"

## UNDER THE QUEBEC AGENCY—DISTRICT No. 4.

21 -B.	Matane.....	Gas and bell.
22 -B.	Manikuagan point.....	Gas and whistle.
25 -B.	Cock point.....	Gas.
27 -B.	Father point .....	"
29 -B.	Rimouski road.....	"
38 -B.	Barrett ledge.....	Gas and bell.
51 -B.	Pilgrim shoal.....	"
56 -B.	Traverse, middle ground .....	Gas.
57 -B.	Lower Traverse.....	"
58 -B.	South Traverse, middle ground .....	"
59 -B.	Lower Traverse.....	"
60 -B.	Upper Traverse.....	"
61 -B.	St. Roch shoals. ....	"
62 -B.	Channel patch, northeast.....	"
64 -B.	Channel patch .....	Gas and bell.
65 -B.	Port Joli.....	Gas.
66 -B.	Goose island reef .....	"
67 -B.	Beaujeu bank, northeast extremity.....	Gas and bell.
69 -B.	" west end.....	"
69½-B.	" channel .....	"
70 -B.	" bank, west end .....	"
71 -B.	St. Thomas channel, south side.....	"
72 -B.	" " north side.....	"
73 -B.	" " south side.....	"
73½-B.	" " southeast end.....	"
74 -B.	" " northeast end .....	"
75 -B.	" " south side. ....	"
76 -B.	" " north side .....	"
77 -B.	" .....	Gas.
78¼-B.	" .....	"
78½-B.	" .....	"
79 -B.	Wye rock.....	"
80 -B.	Grosse ile.....	"
82½-B.	Empress shoal.....	"
84 -B.	Empress shoal .....	"
86 -B.	Madame island reef.....	"
87 -B.	Beaumont reef.....	"
89 -B.	Point Levis .....	"
96 -B.	Lark reef, south end.....	"
102 -B.	Morin shoal.....	"
106 -B.	Grande pointe.....	"



STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion.—Continued.

UNDER THE QUEBEC AGENCY—DISTRICT No. 4—Concluded.

Station No.	Name of Station.	Description of Buoy.
108 -B.	Longue pointe . . . . .	Gas.
110 -B.	Eastern narrows, north traverse . . . . .	"
113 -B.	Traverse spit . . . . .	"
138 -B.	Beauport flats . . . . .	"
140 -B.	St. Charles river . . . . .	"
10 -Q.	Fly bank . . . . .	"
15 -Q.	Point Nicholas . . . . .	"
23 -Q.	St. Antoine, middle ground . . . . .	"
24 -Q.	Pointe aux Trembles . . . . .	"
28 -Q.	Pointe St. Antoine . . . . .	"
34 -Q.	Ste. Croix . . . . .	"
36 -Q.	Ste. Croix bar . . . . .	"
44 -Q.	Cap Santé . . . . .	"
49 -Q.	Pointe Platon . . . . .	"
51 -Q.	Roche à l'Oiseau . . . . .	"

MONTREAL DIVISION—DISTRICT No. 5.

52-Q.	Portneuf . . . . .	Gas
63-Q.	Ilet Mayrand . . . . .	"
68-Q.	Batture Simon . . . . .	"
73-Q.	Batture-du-Chêne . . . . .	"
75-Q.	Batture-à-Cadieux . . . . .	"
78-Q.	Cape Charles . . . . .	"
90-Q.	Cap à la Roche curve . . . . .	"
92-Q.	Cap à la Roche . . . . .	"
97-Q.	Upper Cap à la Roche . . . . .	"
105-Q.	Cap Levrard . . . . .	"
110-Q.	" . . . . .	"
115-Q.	Batiscan course . . . . .	"
117-Q.	" " . . . . .	"
119-Q.	Batture St. Pierre . . . . .	"
123-Q.	Batiscan anchorage . . . . .	"
129-Q.	Batture Perron . . . . .	"
2-C.	Pointe Citrouille . . . . .	"
15-C.	Poulier Carpentier . . . . .	"
20-C.	Ile Bigot . . . . .	"
23-C.	Becancour, lower traverse . . . . .	"
30-C.	Becancour bend . . . . .	"
39-C.	Becancour, upper traverse . . . . .	"
43-C.	Cap Madeleine . . . . .	"
55-C.	Ile aux Cochons . . . . .	"
59-C.	Three Rivers shoal . . . . .	"
4-L.	Poulier Laforce . . . . .	"
9-L.	English bank . . . . .	"
13-L.	Curve No. 3 . . . . .	"
17-L.	" 3 . . . . .	"
21-L.	" 3 . . . . .	"
22-L.	" 3 . . . . .	"
25-L.	" 3 . . . . .	"
35-L.	Pointe du Lac course . . . . .	"
47-L.	" " . . . . .	"
57-L.	Yamachiche bend . . . . .	"
58-L.	" " . . . . .	"
67-L.	Curve No. 2 to White Buoy . . . . .	"
79-L.	" " . . . . .	"
81-L.	" " . . . . .	"
85-L.	" " . . . . .	"
91-L.	Curve No. 1 to Curve No. 2 . . . . .	"
97-L.	" " . . . . .	"
100-L.	" " . . . . .	"
103-L.	" " . . . . .	"
111-L.	Ile aux Raisins . . . . .	"
123-L.	Pointe aux Soldats . . . . .	"



## SESSIONAL PAPER No. 21

STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion.—*Continued.*

MONTREAL DIVISION—DISTRICT No. 5—*Continued.*

Station No.	Name of Station.	Description of Buoy.
136-L.	Ile de Grace....	Gas.
146-L.	Nepigeon shoal.....	"
1-M.	Ile aux Foins ..	"
5-M.	St. Ours traverse.....	"
16-M.	Bellemouth curve.....	"
20-M.	" " .....	"
24-M.	" " .....	"
31-M.	Contrecoeur bend. ....	"
45-M.	" junction.....	"
82-M.	Plum Island.....	"
89-M.	Verchères.....	"
103-M.	Poulier des Trois Bouées.....	"
117-M.	Cap St. Michel.....	"
124-M.	Ile des Lauriers.....	"
129-M.	Varennés curve.....	"
133-M.	" .....	"
141-M.	" .....	"
149-M.	Pointe aux Trembles bend....	"
157-M.	" " curve.....	"
165-M.	Longue Pointe .....	"
167-M.	" .....	"
174-M.	" .....	"
175-M.	Longue Pointe above.....	"
177-M.	Poulier à Gagnon.....	"
181-M.	Longueuil.....	"
191-M.	" .....	"
193-M.	" .....	"
194-M.	Maisonneuve.....	"
195-M.	Ile Ronde.....	"
196-M.	Longueuil.....	"
201-M.	Montreal Harbour.....	"
20-S.	Four-fifth mile above Lachine.....	"
38-S.	Lachine cut, upper entrance.....	"
45-S.	N.E. of 8 ft. patch.....	"
48-S.	East of Lightship No. 2.....	"
53-S.	Off Browns point.....	"
76-S.	Between Light No. 2 and Light No. 3 .....	"
86-S.	Between top light and Ile Perrot... ..	"
98-S.	Windmill point.....	"
100-S.	Entrance to Soulanges canal, east.....	"
102-S.	" .....	"
104-S.	Soulanges canal, east.....	"

## PRESCOTT—DISTRICT No. 6.

25-F.	Grosse point.....	Gas.
30-F.	Soulanges canal, entrance.....	"
36-F.	Coteau Landing .....	"
40-F.	Hay point.....	"
43-F.	West end of middle ground.....	"
46-F.	Port Lewis.....	"
48-F.	Pointe Mouillé flats.....	"
64-F.	Lancaster.....	"
68-F.	Island bank .....	"
69-F.	East Lancaster bar.....	"
76-F.	Lancaster bar.....	"
78-F.	Squaw island .....	"
83-F.	Renshaw island.....	"
84-F.	Clarks island.....	"
87-F.	Grass island.....	"
88-F.	Glengarry point.....	"
96-F.	St. Regis dyke, west end.....	"
6-U.	Delaney shoal .....	"



STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion.—*Continued.*

PRESCOTT—DISTRICT No. 6—*Concluded.*

Station No.	Name of Station.	Description of Buoy.
8-U.	Archibald shoal.....	Gas.
40 U.	Farran point.....	"
54-U.	Prunner shoal.....	"
72-U.	Jackass shoal.....	"
138-U.	Upper entrance, Iroquois canal.....	"
4-T.	Hillcrest.....	"
6-T.	Cole shoal, middle ground.....	"
7-T.	Deer island.....	"
12 T.	Gananoque narrows .....	"
38-T.	Wolfe island.. ..	"
46-T.	Cold Bath shoal.. ..	"
61-T.	Penitentiary shoal.....	"
69-T.	West end of middle ground between Snake island and Seven Acre shoal.....	"
89-T.	Forester island.. ..	"
102-T.	Northport shoal.....	"
106-T.	Minnie Blakely shoal.....	"
110-T.	Trenton.....	"
121-T.	Salt point.....	"

ONTARIO DIVISION—LAKE ONTARIO—DISTRICT No. 7.

1	Niagara .....	Gas and Bell.
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LAKE ERIE—DISTRICT No. 8.

6	Grub reef.....	Gas.
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DETROIT RIVER—DISTRICT No. 9.

13-D.	Bar Point channel.....	Gas.
14-D.	" .....	"
23-D.	" .....	"
24-D.	" .....	"
32-D.	" .....	"
38-D.	Hackett reach .....	"
67-D.	Limekiln crossing. ....	"
68 D.	" .....	"
73-D.	" .....	"
74-D.	" .....	"
79-D.	Ballard reef channel .....	"
80-D.	" .....	"
81-D.	" .....	"
82-D.	" .....	"
83-D.	" .....	"
84-D.	" .....	"
90-D.	South end Fighting island....	"

THAMES RIVER—DISTRICT No. 11.

1	Thames river .....	Gas.
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ST. CLAIR RIVER—DISTRICT No. 12.

1	Courtwright.....	Gas.
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SOUTHAMPTON—DISTRICT No. 15.

4	Chantry island, north.....	Gas and Bell.
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SESSIONAL PAPER No. 21

STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion.—Continued.

GEORGIAN BAY—DISTRICT No. 16.

Name of Station.		Drescription of Buoy.
Cove island .....		Gas and whistling.
Vails point.....		Gas and bell.
Hooper island.....		Gas.
Middle ground .....		"
Three Star shoal.....		"
Seguin bank.....		Gas and whistling
Lone rock.....		" bell.
Lockerbie rock.....		Gas.
Surprise shoal.....		Gas, whistling and bell.
Kennedy bank.....		Gas.
Lottie Wolf Shoal.....		"
Bennett bank.....		" and bell.
Port McNicoll.....		"
Maganatawan ledges.....		" and whistling.
Entrance Key inlet.....		"
Murray Bend inlet.....		"
Keefer Bend inlet.....		"
Digsby inlet.....		"
Mann Reef inlet.....		"
Inside Reef inlet.....		"

ONTARIO DIVISION—STURGEON RIVER—DISTRICT No. 17.

I-N.	Sturgeon bar.....	Gas.
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SAULT STE. MARIE—DISTRICT No. 18.

1	Lower entrance.....	Gas.
3	Upper turning.....	"
4	Vidal shoal E.....	"
5	" S.E.....	"
6	" W.....	"
7	" S.W.....	"
8	Gros Cap reefs .....	" and bell.
10	Pancake shoal.....	" "

PORT ARTHUR—DISTRICT No. 19.

1	Port Arthur .....	Gas.
2	Southeast dredged Channel, Fort William.....	" and bell.
3	Northeast " " ".....	"
4	Hare island reef.....	Gas and bell
6	Thunder Bay channel.....	"

BRITISH COLUMBIA DIVISION—DISTRICT No. 24.

1	Lookout island.....	Gas beacon.
2	Kyuquot. ....	Gas and whistling.
12	San Jos island.....	Gas beacon.
18	Channell rocks.....	Gas and whistling buoy.
19	San Juan.....	" "
23	Lewis reef.....	Gas beacon.
25	Dock island.....	"
25-A.	Sananns island.....	"
26	Canoe rock.....	"
27	Helen point.....	"



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STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion.—*Continued.*

BRITISH COLUMBIA DIVISION—DISTRICT No. 24—*Concluded.*

Station No.	Name of Station.	Description of Buoy.
28	Mary Ann point.....	Gas beacon.
29	Walker rock.....	"
30	Coffin Islet.....	"
31	Danger reef.....	"
32	Joan point.....	"
23	Gabriola reef.....	"
35	Roberts bank.....	Gas and whistling buoy.
36	Grey point.....	Gas and bel l.
37	First narrows, Vancouver harbour.....	Gas beacon.
40	Seechelt.....	"
42	Gallows point, Nanaimo harbour.....	"
43	West rocks.....	"
44	Goose spit.....	"
45	Kelp bar.....	"
47	Oyster bay.....	Gas and bell, buoy.
48	Rebecca island.....	" "
49	Lund.....	Cas beacon.
50	Cortez island.....	"
52	Gillard island.....	Gas and bell, buoy.
53	Maud island.....	Gas beacon.
54	Chatham point.....	"
55	Green point.....	"
56	Helmcken island.....	"
57	Boat harbour.....	"
58	Haddington reef.....	Gas buoy.
61	Noble island.....	Gas beacon.
64	Zero rock.....	"
67	Fog rocks.....	"
69	Camp island.....	"
70	Dall patch.....	Gas and whistling buoy.
71	White rocks.....	Gas beacon.
72	Vancouver rock.....	Gas and whistling buoy.
73	Jorkins point.....	Gas beacon.
74	Boat bluff.....	"
76	Separation point.....	"
81	Kingcombe point.....	"
84	Klewnuggit.....	"
85	Connis island.....	"
86	Watson rock.....	"
87	Herbert reef.....	"
88	Marked tree bluff, Kennedy island.....	"
92	Casey point.....	Gas buoy.
93	Georgia rock.....	Gas and bell buoy.
94	Spire ledge.....	Gas buoy.
95	Barret rock.....	Gas and bell buoy.
96	Coast island.....	Gas beacon.
97	Ridley island.....	"
103	Hodgson reef.....	Gas and whistling buoy.
105	Pointers.....	Gas beacon.
107	Browning entrance.....	Gas and whistling buoy.
109	Dead tree point.....	Gas buoy.
110	Lawn point, Skidegate.....	Gas and bell buoy.
111	Low island.....	Gas beacon.
112	Copper island.....	"
114	Koya point.....	"
116	Rose spit.....	"
118	Tripple island.....	"
120	Aiskew island.....	"



## SESSIONAL PAPER No. 21

*(Enclosure No. 4.)*

STATEMENT showing complete list of stations at which submarine bells are operated.

Black point, off St. John harbour, N.B.	Buoy type.
Point Prim, off Digby gut, N.S.	"
Batson rock, off Brier island, N.S.	"
Lurcher shoals, Bay of Fundy	Lightship type.
Cape Fourchu, N.S.	Buoy type.
Blonde rock, off Seal islands, N.S.	"
Brazil rock, off Barrington, N.S.	"
Sahbro bank, N.S.	"
Iner automatic, off Chebucto head, N.S.	"
Egg island, N.S.	"
Louisbourg, N.S.	Electric type.
Fame point, River St. Lawrence	Buoy type.
Little Metis	"
White island	Lightship type.
Red islet	"
Lower Traverse	"
Southeast shoal, lake Erie, Ont.	"
Sands Heads, off Fraser river, B.C.	"
Clo-oose, near cape Beale, B.C.	Buoy type.
Gossip shoals, Active pass, B.C.	"
Grey point, off Burard inlet, B.C.	"

*(Enclosure No. 5).*

STATEMENT, by localities, giving the number of unlighted buoys, stakes, bushies, etc., maintained throughout the Dominion.

## NEW BRUNSWICK DISTRICT.

Name of locality; and No. of stakes, bushes, etc	No. of Buoys.	Name of locality; and No. of stakes, bushes, etc	No. of Buoys.
Aldouane, 42 bushes	5	Miramichi river, southwest branch	9
Alma	3	Miramichi river, northwest branch	10
Baie Verte and port Elgin, 30 stakes	6	Miscou	8
Bartibog, 12 bushes	1	Musquash	4
Bathurst	26	Neguac	19
Baie du Vin	13	Napan river, 24 stakes	3
Buctouche( 34 stakes	22	Petit Rocher	1
Buctouche river, 260 bushes		Pisarinco	2
Campobella	10	Pokemouche, bushes	6
Caraquet	16	Richibouctou, Rexton and Browns yard	30
Caraquet to Mizzenette	3	Richibucto	35
Chance harbour	2	St. Andrews, 3 stakes	16
Cocagne, 30 stakes	11	St. Charles river, 50 stakes	
Dalhousie and Restigouche	10	St. John river, 154 stakes	78
Digdequash	6	St. Louis, 35 bushes	9
Dipper harbour	4	St. Louis river, 54 bushes and stakes	
Dorchester	3	St. Simon bay	4
Grande Anse	4	Salmon river, bushing	15
Granddigue, 30 stakes	2	Scotchtown	6
Grand lake, bushes	32	Shampers wharf, 15 stakes	2
Grand Manan, 1 spindle	28	Shediac	19
Grassy island, 18 stakes	7	Shippigan, 27 pickets, 30 stakes	27
Great Shemogue	7	Tabusintac	20
Hatfield point, number of bushes	1	Tracadie, north gully, 100 bushes	12
Indian point bar channel, 10 bushes	3	Tracadie, south gully, 30 bushes	5
Kouchibouguac and Black Lands gully, bushes	12	Tynemouth creek	4
Letite, L'Etang and Bliss harbour	14	Washadamoak, 144 bushes	2
Little Shemogue, 2 poles	5	Waweig river	2
Little Shippigan	3	West isles, 4 spindles	23
Magaguadavic	13	Maintained by agency—	
Maquapit and French lakes, 17 stakes	8	Bell buoys	23
Miramichi bay and river, bushes	37	Whistling buoys	8
Miramichi river, Black brook	3	Conical and can buoys	38
Miramichi river, Grandoon channel	20	Spar buoys	24



STATEMENT, by localities, giving the number of unlighted buoys, stakes, etc.—*Con.*

NOVA SCOTIA DISTRICT.

Name of locality ; and No. of stakes, bushes, etc	No. of Buoys.	Name of locality ; and No. of stakes, bushes, etc	No. of Buoys.
Advocate harbour.. . . . .	6	Mabou, stakes.. . . . .	19
Amherst basin.. . . . .	4	Margaree harbour, 7 stakes.. . . . .	2
Apple river.. . . . .	8	Mahone bay.. . . . .	9
Ardoise.. . . . .	5	Mainadieu.. . . . .	5
Arichat.. . . . .	19	Marble Mountain . . . . .	5
Argyle river and sound . . . . .	10	Marie Joseph, 11 winter buoys.. . . . .	16
Avon river.. . . . .	5	Martins brook.. . . . .	6
Barrington, 11 dolphins.. . . . .	42	McKinnon harbour.. . . . .	6
Bear river.. . . . .	8	McNab cove.. . . . .	2
Beaver harbour, 8 winter buoys . . . . .	8	McVarish shoal and Campbell point, Bras d'Or.. . . . .	4
Beaver narrows, C.B.. . . . .	2	Merigomish, bushes.. . . . .	6
Birchton.. . . . .	5	Meteghan river.. . . . .	2
Blandford.. . . . .	5	Monsellier, 4 stakes.. . . . .	6
Bridgewater.. . . . .	6	Musquodoboit.. . . . .	14
Brulé.. . . . .	9	Neil harbour.. . . . .	1
Calf island bay.. . . . .	5	Northport . . . . .	12
Canning or Habitant river, 6 dolphins.		Orangedale.. . . . .	3
Canso and St. Andrews passage, 20 win- ter buoys.. . . . .	27	Parrsboro.. . . . .	6
Cape Negro and Northeast harbour . . . . .	17	Pennant harbour . . . . .	9
Caribou.. . . . .	6	Petitdegrat, 6 winter buoys.. . . . .	13
Chester and Gold river.. . . . .	28	Pope harbour.. . . . .	1
Cheticamp.. . . . .	12	Port Bickerton, 3 winter buoys.. . . . .	5
Chezzetcook and Petpeswick . . . . .	10	Port Felix, 1 stake.. . . . .	11
Christmas island and Barra strait.. . . . .	11	Port l'Hébert.. . . . .	13
Clarke harbour.. . . . .	17	Port Hood, 2 winter buoys.. . . . .	5
Cockerwitt pass.. . . . .	19	Port Latour.. . . . .	16
Coddle harbour.. . . . .	6	Port Medway.. . . . .	4
Cooks' cove (Toby cove).. . . . .	4	Port Morien.. . . . .	1
Crooked channel.. . . . .	5	Port Mouton.. . . . .	9
Crow harbour.. . . . .	3	Pringle harbour.. . . . .	2
Denny river.. . . . .	3	Pubnico.. . . . .	21
D'Escousse and Lennox passage . . . . .	29	Pugwash.. . . . .	9
Digby and Annapolis, 5 winter buoys. . . . .	14	River Bourgeois.. . . . .	6
Dover.. . . . .	4	River John, stakes.. . . . .	3
East bay, Bras d'Or.. . . . .	5	River Phillip.. . . . .	6
East Dover.. . . . .	3	Roseway.. . . . .	5
Eskasoni.. . . . .	4	St. Anns.. . . . .	10
Fourchu harbour . . . . .	11	St. Mary river, winter buoys.. . . . .	11
Freeport, 1 beacon.. . . . .	3	St. Mary river to Sherbrooke.. . . . .	18
French village, St. Margaret bay.. . . . .	5	St. Peter bay, 4 winter buoys.. . . . .	16
Geoggin.. . . . .	7	St. Peter inlet.. . . . .	10
Gillis point, Boulacet.. . . . .	1	Sambro.. . . . .	15
Glace bay.. . . . .	4	Shad bay.. . . . .	4
Goose bay, 35 stakes.. . . . .	8	Shag harbour.. . . . .	17
Great Bras d'Or.. . . . .	7	Shelburne.. . . . .	8
Guysborough.. . . . .	5	Sheet harbour, 5 winter buoys.. . . . .	9
Havre Bouch, 6 stakes.. . . . .	4	Ship harbour (Lower), 6 winter buoys. . . . .	11
Indian harbour.. . . . .	4	Ship rock, strait of Canso.. . . . .	1
Ingonish, South bay . . . . .	9	Shulee.. . . . .	8
Isaac harbour, 9 winter buoys.. . . . .	13	Smith island, West bay.. . . . .	1
Jeddore, winter buoys.. . . . .	9	Sober island to Ecum Secum.. . . . .	22
Johnson harbour.. . . . .	5	Spry aby.. . . . .	4
Ketch harbour.. . . . .	6	Stoney island, Baddeck.. . . . .	1
Kieley cove, Blind bay . . . . .	4	Sydney inner harbour.. . . . .	2
Lahave.. . . . .	6	Tancook island.. . . . .	3
Larry river, 7 stakes.. . . . .	3	Tangier, 7 winter buoys.. . . . .	7
Liscomb.. . . . .	6	Tatamagouche, 46 stakes.. . . . .	18
Little Bras d'Or . . . . .	12	Terence bay.. . . . .	3
Little Dover.. . . . .	9	Three-Fathom harbour.. . . . .	5
Little Liscomb.. . . . .	4	Tidnish, stakes.. . . . .	5
Little Narrows.. . . . .	10	Tor bay.. . . . .	21
Liverpool.. . . . .	8	Tusket river.. . . . .	9
Lunenburg.. . . . .	8	Tusket Wedge, 3 spindles.. . . . .	17
Lunenburg, back cove.. . . . .	9	Upper Prospect.. . . . .	4
Lunenburg, middle south, 6 winter buoys.. . . . .	16	Volgers cove.. . . . .	3
Louisburg, 6 winter buoys.. . . . .	8	Wallace, 33 stakes.. . . . .	11
Lower Prospect.. . . . .	10	Walton harbour.. . . . .	1
		Washaback river.. . . . .	7



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STATEMENT, by localities, giving the number of unlighted buoys, stakes, etc.—*Con.*NOVA SCOTIA DISTRICT—*Concluded.*

Name of locality; and No. of stakes, bushes, etc	No. of Buoys.	Name of locality; and No. of stakes, bushes, etc	No. of Buoys.
West bay.. . . . .	5	Maintained by agency—	
West Chezzetcook.. . . . .	7	Bell buoys.. . . . .	48
West Dublin.. . . . .	12	Whistling buoys.. . . . .	16
Weymouth.. . . . .	19	Conical and can buoys.. . . . .	78
Whitehaven, 5 winter buoys.. . . . .	8	Spar buoys.. . . . .	36
Yarmouth.. . . . .	9		

## PRINCE EDWARD ISLAND DISTRICT.

Bay Fortune.. . . . .	3	Murray harbour and rivers, 24 stakes.	37
Beach point.. . . . .	3	New London, 30 stakes.. . . . .	17
Bedeque, stakes.. . . . .	4	North river, 14 stakes.. . . . .	3
Belle river.. . . . .	3	Orwell and Vernon river, 36 bushes, 3 beacons.. . . . .	3
Brae harbour.. . . . .	5	Pinette, 24 bushes.. . . . .	8
Brudnell river.. . . . .	5	Port Hill.. . . . .	12
Cardigan, lower, 2 winter buoys.. . . . .	7	Pownal, 10 stakes.. . . . .	9
Cardigan, upper.. . . . .	20	Rollo bay.. . . . .	3
Casumpeque.. . . . .	16	Rustico, 30 stakes.. . . . .	6
Covehead.. . . . .	3	Savage harbour.. . . . .	2
Crapaud, stakes.. . . . .	6	Souris.. . . . .	4
East river, stakes and bushes.. . . . .	14	St. Peter harbour, 6 stakes.. . . . .	5
Egmont bay, north, 19 stakes.. . . . .	9	Summerside, stakes.. . . . .	7
Egmont bay, south, 11 stakes.. . . . .	3	West point.. . . . .	2
Georgetown.. . . . .	19	West river, stakes.. . . . .	8
Goose and Palmer harbours.. . . . .	5	Wood island.. . . . .	4
Grand river, 1 beacon, bushes.. . . . .	12	Maintained by agency—	
Grand river.. . . . .	8	Bell buoys.. . . . .	4
Grand Tracadie.. . . . .	4	Whistling buoys.. . . . .	4
Little channel.. . . . .	3	Conical and can buoys.. . . . .	13
Malpeque.. . . . .	16	Steel barrel.. . . . .	1
Miminegash.. . . . .	6		
Montague, 10 stakes .. . . . .	7		

## QUEBEC DISTRICT.

Anse à Beaufile.. . . . .	1	Magdalen islands, Grand Entry.. . . . .	17
Anse aux Gascons.. . . . .	1	Magdalen islands, House harbour.. . . . .	11
Barachois de Malbaie.. . . . .	1	Maria.. . . . .	2
Beauport.. . . . .	3	Matane.. . . . .	2
Bonaventure river.. . . . .	11	Natashkwan.. . . . .	4
Cap Chat.. . . . .	1	New Richmond.. . . . .	3
Cape Cove.. . . . .	1	North channel, island of Orleans.. . . . .	13
Cap d'Espoir.. . . . .	1	Nouvelle.. . . . .	2
Carleton point.. . . . .	1	Paspebiac.. . . . .	1
Eschourie rock (Serpent reef).. . . . .	1	Pentecost.. . . . .	1
Fox river.. . . . .	1	Percé.. . . . .	2
Gaspé.. . . . .	6	Point St. Peter.. . . . .	1
Gros Cap-aux-Os.. . . . .	1	Port Daniel.. . . . .	1
Lake St. John .. . . . .	14	Portneuf-en-bas.. . . . .	9
Lake St. John, Ashuapmouchuan river, 30 bushes.. . . . .	7	Restigouche river.. . . . .	12
Lake St. John, Mistassini river, 60 bushes.. . . . .	12	Ste. Anne river.. . . . .	1
Lake St. John, Peribonka river and Roberval, 35 bushes.. . . . .	16	St. Godfroy.. . . . .	1
Little river east.. . . . .	1	St. Michel.. . . . .	4
Little river west.. . . . .	1	St. Thomas de Montmagny.. . . . .	38
Magdalen islands.. . . . .	12	Saguenay river, vicinity of Chicoutimi.	33
Magdalen islands, Amherst harbour .. . . . .	8	Maintained by agency—	
		Conical and can buoys.. . . . .	32
		Bell buoy.. . . . .	1

## MONTREAL DISTRICT.

Lake Memphramagog.. . . . .	1	St. Francis riv., 12 day beacons, balises	80
Richelieu river, above St. Johns .. . . . .	27	Yamachiche river, 4 day beacons "	30
Richelieu river, Sorel to Chambly.. . . . .	37	Yamaska river, 6 day beacons "	60
Richelieu rapids, bushes .. . . . .		Maintained by agency—	
Rivière des Prairies.. . . . .	11	Conical and can.. . . . .	49
St. Maurice river, Grandes Piles, La- tuque, 106 day beacons .. . . . .	74	Spar buoys.. . . . .	381



STATEMENT, by localities, giving the number of unlighted buoys, stakes, etc.—*Con.*

ONTARIO DISTRICT.

Name of locality ; and No. of stakes, bushes, etc	No. of Buoys.	Name of locality ; and No. of stakes, bushes, etc	No. of Buoys.
Blind river.. . . .	6	River Thames.. . . .	7
Brule shore, lake Superior.. . . .	1	Rondeau.. . . .	6
Burke shoal, lake Superior.. . . .	1	St. Clair river, chenal Ecarté .. . . .	1
Cache bay, lake Nipissing, 8 stakes..		St. Joseph channel, lake Huron, 6 win- ter buoys, 1 beacon.. . . .	23
Clapperton channel, 1 beacon.. . . .	8	Sault Ste. Marie canal approaches.. .	25
Cloud bay, lake Superior.. . . .	2	Silver islet, lake Superior.. . . .	2
Detroit river .. . . .	25	South Baymouth.. . . .	4
Goderich.. . . .	6	Stokes bay.. . . .	6
Grand reef, lake Superior .. . . .	1	Saugeen river.. . . .	7
Kaministikwia river, Fort William, lake Superior .. . . .	15	Sturgeon river.. . . .	25
Lake Simcoe.. . . .	5	Timagami lake, 4 beacons .. . . .	31
Lake Superior, south eastern part.. .	7	Trent canal (maintained by dept. Rail- ways and Canals), number of buoys.	
Lake Timiskaming, bushes.. . . .	9	Victoria island, lake Superior.. . . .	3
Lake of the Woods.. . . .	270	Waubauskene.. . . .	53
Little Current.. . . .	15	Warrens landing, lake Winnipeg.. .	12
Michipicoten.. . . .	6	Maintained by Parry Sound agency—	
Mutton island, lake Superior.. . . .	1	Bell buoys.. . . .	2
Niagara river mouth.. . . .	2	Conical buoy.. . . .	1
Orillia, 11 bushes.. . . .	8	Spar buoys.. . . .	117
Pembroke.. . . .	26	Maintained by Prescott agency—	
Penetanguishene.. . . .	10	Conical can, spherical.. . . .	18
Point au Baril, 15 beacons.. . . .	4	Barrel buoys.. . . .	2
Port Arthur.. . . .	20	Spar buoys.. . . .	111
Port Rowan.. . . .	10		
Presqu'île bay, lake Ontario.. . . .	17		

MANITOBA.

Black river, lake Winnipeg.. . . .	6	Red river.. . . .	6
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BRITISH COLUMBIA DISTRICT.

Arrow lakes, Upper and Lower.. . . .	15	Maintained by agency—	
Coal harbour.. . . .	7	Bell buoys.. . . .	3
Fraser river.. . . .	25	Whistling buoys.. . . .	2
Kootenay lake, northwest arm.. . . .	11	Conical and can buoys.. . . .	53
Pitt river.. . . .	14	Platform buoys.. . . .	32
South Thompson river, 4 day beacons.	18	Spar buoys .. . . .	54

(Enclosure No. 6).

STATEMENT showing new gas buoys and beacons established during fiscal year 1914-15.

Nova Scotia—		Montreal— <i>Con.</i> ...	
Sculpin rock.. . . .Gas and bell buoy.		Lake St. Louis, 8-foot	
Lighthouse bank.. . . .“ “		patch.. . . .Gas buoy.	
Ives knoll .. . . .“ “		Prescott—	
New Brunswick—		Glengarry point .. . . .“	
Beacon bar.. . . .“ “		Sault Ste. Marie—	
Prince Edward Island—		Gros cap reefs .. . . .Gas and bell buoy.	
Carleton point.. . . .Gas buoy.		British Columbia—	
Quebec—		San Jose island .. . . .Gas beacon.	
Empress shoal.. . . .“		Rebecca island.. . . .“	
Roche à l'Oiseau.. . . .“		Noble island .. . . .“	
Montreal—		White rock..s .. . . .“	
Curve No. 2, lake St. Peter. “		Kingcombe point .. . . .“	
Longue point (below) .. “			



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## APPENDIX No. 3.

## RIVER ST. LAWRENCE SHIP CHANNEL.

## REPORT OF SUPERINTENDENT.

OTTAWA, July 28, 1915.

The Deputy Minister of Marine,  
Ottawa, Ont.

SIR,—I have the honour to present the following annual report on the operations for the improvements of the River St. Lawrence Ship Channel, during the fiscal year ending March 31, 1915.

I have the honour to be, sir,

Yours obediently,

V. W. FORNERET, B.A., Sc.,

*Superintending Engineer.*

*History of the Undertaking—Montreal to Quebec.*

The St. Lawrence, owing to its situation, is the natural route from the Atlantic to the northern and northwestern half of the North American continent. The possibility of converting Montreal into a deep-water seaport was first suggested in the year 1825, when the Lachine canal was completed and connected Montreal with the Great Lakes, establishing the route commercially.

Light-draught sailing vessels could then reach Montreal without trouble except during a few weeks in the autumn, when they resorted to lightering. Surveys were made with the object of increasing the depth of water in the waterway. After these were completed, the question of which channel to adopt through lake St. Peter was hotly discussed, some favouring the "natural" or old ship channel, and others the "straight channel" through the St. Francis bank. Finally it was decided to proceed with the work of deepening the "straight channel," the aim being to obtain a channel 150 feet in width and to a depth of 14 feet at the lowest water, instead of 10 feet 6 inches at lowest water, as existed in the old ship channel which governed the available depth for navigation between Quebec and Montreal.

The "Board of Works" of Canada was entrusted with the task and began operations in the spring of 1844 and continued till the month of June, 1846, when the work was suspended; the management was changed, and the execution of the work transferred from the Board of Works to the control of the Commissioners of Public Works. The dredging was again resumed in the month of September of the same year. Owing to continued opposition, the work of cutting the "straight channel" was finally suspended on the 16th of September, 1847, and subsequently abandoned. After over sixty years it is now considered that the "straight channel" as commenced, would have been preferable. Nothing more was done on lake St. Peter by the Commissioners of Public Works for three years. The Harbour Commissioners of Montreal then came forward and offered to complete the project expeditiously and economically. The proposal was accepted and an Act was passed in August, 1850, transferring the work of



improving the Ship channel from the Commissioners of Public Works to the Harbour Commissioners of Montreal, who were empowered to charge a tonnage duty sufficient to pay 8 per cent interest upon the outlay, with a 2 per cent contribution to the sinking fund.

*Sixteen-foot channel.*—The Harbour Commissioners, after examination and the best advice obtainable, adopted the present channel with five tangents instead of two long straight courses, as at first commenced in the “straight channel.” Operations were begun in June, 1851, to dredge this channel to 16 feet at low water. Most of the dredging required to attain this depth was in lake St. Peter, but some small shoals had to be removed at Ile Delorier and Lavaltrie channel, and after steady work it was all completed in 1854 to a depth of 16½ feet at low water, and with a width of from 250 to 300 feet.

*Twenty-foot Channel.*—The work of deepening the channel to attain a depth of 20 feet at low water with a width of 300 feet was continued by the Harbour Commissioners and accomplished in November, 1865. Dredging was necessary at Pointe aux Trembles (en-haut) channel and lake St. Peter to obtain this depth. Several obstructions had also to be removed in order to maintain a more direct channel between cap St. Michel and Lavaltrie, and in Lavaltrie channel. The “south” or Verchères channel had been selected for improvement instead of the old channel or “north channel” by way of Repentigny and St. Sulpice.

The operations of 1866-9 were of limited extent, and consisted chiefly in cleaning up and improving the 20-foot channel which was obtained in 1865.

The completion of the 20-foot channel marked an important era in the history of the St. Lawrence route. The success of the work amply demonstrated that the St. Lawrence could be made available up to Montreal for navigation by the largest class of ocean merchant ships, and the extraordinary increase of Canadian commerce that attended the improvement of the channel showed how imperatively it was demanded by the trade of Canada. No sooner was the new channel fairly in use than the rapid increase of ocean traffic suggested a further deepening, and a vigorous agitation was commenced for a 24-foot channel at low water.

*Twenty-five foot Channel.*—It was then resolved to deepen the channel to 25 feet, which was accomplished in the fall of 1882. A new channel on the south side of the river, opposite Contrecoeur and parallel to the Lavaltrie channel was adopted for this channel, as it was wide and deep and required very little dredging. It was called the Contrecoeur channel. This gave a clear depth of 25 feet at low water at all points above cap à la Roche, but at that point and cap Charles an average tide was necessary to pass with the full depth available elsewhere. In the straight parts of the channel the minimum width was 300 feet and at the bends 325 to 450 feet.

*Twenty-seven and a-half-foot Channel.*—Owing to the growth of trade, it was seen that still further improvement of the channel was required, and the Harbour Commissioners of Montreal obtained permission, by an Order in Council passed the 14th of June, 1883, to proceed with a further deepening to 27½ feet at low water. The work was vigorously pushed forward, and, by 1888, the channel was completed to this depth from Montreal to cap à la Roche, a distance of 107½ miles, from which point to Quebec the tide was necessary to obtain that depth. The channel was 300 feet wide in the straight portions, and 450 feet at the bends.

At this juncture the Federal Government, realizing that the tonnage charges upon the Ship channel were detrimental to the mercantile expansion of Montreal, passed an Act, in 1888, making the Ship channel a national and not a local work, and relieved the Harbour Commissioners of their indebtedness with respect to the Ship channel, and transferred the work, plant, etc., to the Department of Public Works.



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The tonnage dues were abolished accordingly, so that since the work came under Federal control, the River St. Lawrence ship channel has been free to commerce of the world.

The Harbour Commissioners carried on the operations for the Department of Public Works till the end of the season of 1888, when the official connection of the commissioners with the ship channel ceased, after having continued for over thirty-eight years.

In January, 1889, the control and management of the work was assumed by the Department of Public Works. During the winter, extensive repairs were made to the dredging plant, which, on the opening of navigation, was set to work at cap à la Roche, Poullier Rayer, and Cap Charles in deepening the channel at those points to  $27\frac{1}{2}$  feet at low water, spring tides.

From this date to 1898, the Department of Public Works continued operations, and completed the difficult rock work at Cap a la Roche and Cap Charles to  $27\frac{1}{2}$  feet at low water. In addition, many portions of the channel were cleaned up, straightened, and several curves and narrow places widened. Surveys were made and channels were dredged through several shoals between Cap Charles and Quebec to avoid the necessity of waiting for the tide.

*Thirty-foot Channel.*—The unusually low water of 1895 and 1897, and the increased size of vessels, urgently called for a wider and deeper channel, and larger and more powerful dredges and plant were required.

In 1899 the dredging plant was in a condition to warrant a more extensive plan of operations.

The low water of 1897, the lowest on record, except the short period of unusually low water of 1895, was adopted as the new datum for the 30-foot channel, and is nearly  $1\frac{1}{2}$  to 2 feet lower than the ordinary low-water plans of the  $27\frac{1}{2}$ -foot channel. The object, therefore, was to realize in the shortest possible time, a channel 450 feet wide on the tangents, and from 500 to 750 feet wide at the curves. An anchorage 800 feet wide was also to be provided at White Buoy curve in lake St. Peter. The work also included much straightening of the channel.

The ship channel continued under the control of the Department of Public Works until 1904, when an Order in Council was passed on March 11 transferring the management and control of the River St. Lawrence ship channel, together with the dredging and shipbuilding plant to the Department of Marine and Fisheries, so as to place the supervision of the improvements to navigation on the St. Lawrence route under the department directly responsible for the pilotage and aids to navigation.

Under this department the work was vigorously continued, so that the season of 1907 saw the completion of the channel from Montreal to Batiscan to 30 feet depth at the extreme low water of 1897, a distance of 101 miles. From that point to Quebec, the tide could be used to obtain the same depth. There still remained, however, some widening in lake St. Peter. By the end of the season of 1910, the dredging was all completed to 30 feet to the head of Cap à la Roche curve, 6 miles below Batiscan, including all the widening between Montreal and that point. The completion of this work allowed more dredges to be placed in the Cap à la Roche district, where dredging operations are the most difficult, the current being strong and the material to be removed mostly hard shale rock.

The dredging operations were then carried on with renewed energy and, considering the difficulty of working in this locality, good progress has been made, so that at the close of the season of 1914 only about half a mile of deepening in the Cap à la Roche district was required to give a depth of 30 feet at extreme low water. This is  $4\frac{1}{2}$  feet greater depth than in the  $27\frac{1}{2}$ -foot channel as the low-water plane adopted for the 30-foot project here is 2 feet lower than that of the  $27\frac{1}{2}$ -foot channel. The widening is nearly completed.



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The Cap à la Roche channel was widened from 300 feet to 450 and 550 feet, and the Cap Charles channel from 300 feet to 450 feet with 600 feet at the curve, and completed last season.

Grondines channel was also completed last season to a depth of 30 feet, with a width of 450 feet.

Both the Cap Charles and Grondines channels are to be opened for navigation in the spring of 1915.

The only place that now requires dredging to obtain 30 feet between Cap à la Roche and Quebec is at St. Augustin bar, 14 miles above the latter place. Advantage must still be taken of the tide, by deep-draught vessels, to pass this place, the range of tide being  $16\frac{1}{2}$  at springs and 11 at neaps. It is proposed to begin work on this part of the project next season.

*Thirty-five foot Channel.*—In 1910 the question of further deepening was considered because the rapid increase in the size of vessels was likely to find the 30-foot channel too shallow. The Government therefore resolved to proceed immediately with the deepening of the ship channel to 35 feet at extreme low water of 1897, and in 1910 work started in lake St. Peter. Owing to the undulating character of the river bed, dredging is not required throughout the whole length of the channel between Montreal and Quebec, as at some points the natural depth is more than sufficient to secure 35 feet at extreme low water.

Out of a total distance of 160 miles, 82.24 miles will require dredging. This work is now in active progress, and at the end of the season of 1914, 20.60 miles had been dredged to 35 feet, leaving 61.64 miles unfinished.

#### SHIP CHANNEL BELOW QUEBEC.

In the spring of 1901 the shipping interests of Montreal brought to the attention of the Honourable the Minister of Public Works, the fact that deep-draught vessels had to wait for the tide to pass St. Thomas and Crane island shoals, which caused these vessels to lose a great deal of valuable time. The officers of the Marine and Fisheries Department at Quebec, who had an intimate knowledge of this part of the river, strongly recommended improving the north channel, commencing below the island of Orleans, as being much better, more easily navigated and having less ice in winter than the south channel. Orders were given to the ship channel staff which was then under the Department of Public Works to make a survey and examination of the north channel with a view to reporting on the practicability and cost of improving that route and adopting it for navigation.

In 1902 a similar survey was made of the south channel, to ascertain what improvements would be required to make a 30-foot channel on the line of the existing route.

A comprehensive report was made on February 24, 1903, by Mr. F. W. Cowie, C.E., who was then Superintending Engineer to the Acting Chief Engineer of the Public Works Department, on the question of the proposed improvements below Quebec.

The report did not recommend the adoption of either route, but advised that the choice should meet with the approval of the underwriters, the shipping interests, and the pilots.

The Transportation Commission visited the locality, going over each channel, and took evidence on the subject. It was finally decided to improve the south channel by dredging it to 30 feet at extreme low tide, and to a width of 1,000 feet.

The parliamentary appropriation for improving the south channel below Quebec became available only late in the autumn of 1905. The ship channel dredging operations had been transferred to the Department of Marine and



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Fisheries in 1904. Arrangements were made to have a powerful steel twin-screw hopper hydraulic dredge, constructed at the government shipyard at Sorel. It was estimated that it would take a year and a half to build and equip this powerful machine, which was carefully designed for that special work.

In March, 1906, the Department of Marine and Fisheries received very strong representations that these improvements could not be delayed, and that to wait till 1907 to make a commencement would seriously menace the proposed plans for a largely improved steamship service. The nature of the work below Quebec, the exposed position, want of shelter, etc., made the ordinary American type of dredge out of the question.

The self-propelling sea-going hopper type, as almost altogether used in Great Britain being required, inquiries were made from the dredge builders in Great Britain and ship agents for a dredge immediately available, suitable for this work.

The builders had none on hand, and the only suitable ones offered were in Australia and South Africa. Messrs. Ferguson Bros., one of the largest firms building dredging and harbour plant, wrote stating that there was not a hopper dredger of the capacity mentioned to be bought in England. Messrs. Simons & Company, also large and successful dredge builders, wrote that all their large dredges were fully employed, and that they did not think there was a possibility at that time of procuring a second-hand hopper dredger, either hydraulic or bucket ladder type.

A Dutch pump, at New Orleans, was offered by Messrs. H. E. Moss & Company, of Liverpool, England, for £34,000. The price being very reasonable, on authority of Council the Minister ordered an examination with a view to purchase. The only objection to this dredge was that it had no cutter and therefore not suitable for dredging anything but sand or soft silt. After examination it was decided to purchase it, as Messrs. Moss & Co. had reduced their offer to £30,000.

The dredge was purchased on April 20, 1906, at that price, or \$146,000, with interest to date of payment. The vessel was docked and made ready for the long voyage, and all expenses of repairs, wages, provisions, stores, etc., until the dredge reached Quebec, amounted to \$10,942.14 and \$4,574.17 insurance.

The dredge *Galveston* arrived at Quebec from New Orleans under her own steam, having been twenty-nine days on the voyage. She continued up to Sorel to be thoroughly overhauled and fitted out, additional quarters for the crew being also provided.

*South Channel* (30 feet at E.L.W.)—The Government having decided to first improve the south channel, preparations were made to start the work. The project had in view a channel 30 feet in depth, at extreme low tide, at Beaujeu bank and St. Thomas' flats, with a width of 1,000 feet.

The changes and improvements on the dredge *Galveston* being completed, she left Sorel for Beaujeu bank, off Crane island, on August 11, 1906, and began operations on August 13, the material consisting of coarse sand and gravel with some layers of soft blue clay. The new hopper hydraulic dredge *Beaujeu* was launched at the government shipyard at Sorel on December 2, 1906, and completed on November 1, 1907. She was then taken down to commence operations on the channel through St. Thomas' flats, the material to be dredged being soft clay, sand, and some stones.

With these two powerful dredges, good progress was made with the work. The Beaujeu bank channel was completed in 1909 to 30 feet at extreme low tide, and the widening finished in 1910. The channel was then opened to navigation.

The St. Thomas channel was completed to a depth of 30 feet at extreme low tide and to a width of 1,000 feet during the season of 1912. The channel was then marked out with gas buoys and opened to navigation. This was considered a great improvement, as deep-draught vessels were not obliged to anchor to wait for the tide to pass Beaujeu bank or St. Thomas' flats, thereby saving much valuable time.



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*North Channel* (35 feet at E.L.T.)—The south channel being now completed, the powerful hydraulic dredge *No. 8 (Beaujeu)* was enabled to be placed at work on the north channel where dredge *No. 9 (Galveston)* had already been operating for a season, as the Government had decided to dredge the north channel between St. Jean island of Orleans, and Goose cape, to a depth of 35 feet at extreme low tide, and to a width of 1,000 feet.

The two powerful sea-going hydraulic dredges *No. 8* and *No. 9*, have since then been at work in that channel, the material to be dredged being sand and gravel.

Although these two dredges have made good progress, there still remains 9,839,223 cubic yards to be removed.

Owing to requests made by the shipping interests to complete the channel as soon as possible, the Government gave a contract in October, 1914, to the Canadian Vickers, Ltd., of Montreal, to build one of the largest sea-going elevator dredges in the world. With this addition to the dredging first below Quebec, the completion of the north channel will be greatly expedited.

#### ACCIDENTS IN 1914.

##### *Between Montreal and Quebec.*

SB. *J. H. Plummer* grounded on bank when entering the channel to the Vicker's dry dock basin, May 10. Was pulled off easily; apparently no damage. Went on wrong side of buoys.

SB. *Saskatoon* stranded July 24, near Portneuf on south side; steamer went on wrong side of buoy. Considerable damage to bottom.

SS. *Anglo-Brazilian* stranded August 26, on south side of channel, Montreal harbour. Was pulled off with difficulty, some damage to bottom. Due to tow rope breaking.

SB. *Georgetown* was stranded on the south side outside the channel, Becancourt lower traverse, on October 9; came off easily, apparently no damage.

SS. *Zealand* stranded on south side of channel, Ile aux Raisin traverse, lake St. Peter, during blinding snowstorm, November 13. Had to be dredged out. No damage.

SS. *Batiscan* collided with ss. *Rossano* at Middle reach, lake St. Peter, November 14. Slight damage. SS. *Rossano* sheered, striking the *Batiscan*.

##### *Between Quebec and Father Point.*

SS. *Saturnia* stranded at Lower traverse, April 28. Came off easily. Damage slight.

SS. *Montfort* stranded on Beauport bank, Quebec harbour, April 28. Heavy ice forcing ship on bank. Slight damage.

SS. *Norhilda* stranded at Madame island, September 16. Came off easily. Had no pilot.

C.G.S. *Montmagny* collided near Crane island, September 18, with collier *Lingan*, which carries coal from Sydney, C.B., to Montreal. The *Montmagny* was sunk, and 14 lives were lost.

SS. *Thyra Memier* stranded at White island, October 10. Slight damage. Cause of accident due to dense vapour.

SS. *Batiscan* collided with tug *Muriel* half mile west of Madame Reef buoy, on October 16. The tug *Muriel* was sunk, and one life lost.

C.G.S. *Montcalm* collided with ferry steamer *Lauzon*, Quebec harbour, on November 10. Slight damage.

None of the above accidents can be attributed to any fault of ship channel.



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## MARINE SIGNAL SERVICE.

Signal stations have been established for the purpose of maintaining communication between ship and shore by means of flag signals.

This system of stations extends from St. John, N.B., Halifax, N.S., cape Race, Nfld., and Belle Isle, up the gulf and river St. Lawrence and through the Great Lakes to Sault Ste. Marie.

Following is a complete list of stations:—

## EAST OF QUEBEC.

Name of Station	Location.	Nautical miles from Quebec.	Means of communication.
R—Quebec.....	Custom-house.....	0	Telephone.
R—St. Jean d'Orleans .....	Shore end of wharf.....	14	"
Crane Island.....	Lighthouse.....	32	"
L'Islet .....	100 yards east of church.....	40	Telegraph.
Cape Salmon.....	Lighthouse.....	81	Telephone and telegraph.
Rivière du Loup .....	Shore end of wharf.....	92	Telegraph.
Father Point.....	Shore end of wharf. ....	157	"
Little Metis .....	Lighthouse.....	175	"
Matane.....	" .....	200	"
Pointe des Monts.....	" .....	219	"
Cape Chatte .....	" .....	234	"
Martin River.....	" .....	260	"
Cape Magdalen. . . . .	" .....	294	"
Fame Point.....	" .....	325	"
Cape Rosier .....	" .....	349	"
Cap d'Espoir.....	" .....	377	"
Pointe Maquereau... ..	" .....	400	"
West Point.....	" .....	332	"
Southwest Point.....	" .....	360	"
South Point .....	" .....	415	"
Heath Point.....	" .....	438	"
Point Escuminac.....	" .....	462	"
Amherst Island.....	" .....	481	"
St. Paul Island.....	Main station.. ..	540	Telephone.
Money Point.....	Lighthouse... ..	537	"
Flat Point.....	" .....	575	Telegraph.
Cape Ray.....	" .....	553	"
Cape Race.. ..	" .....	826	"
Point Amour.....	" .....	673	"
Belle Isle.....	" .....	734	Wireless-Telegraph.
Camperdown.....	Near Wireless station. ....		Telephone.
Halifax.....	The Citadel.....		"
Brier Island.....	Near lighthouse .....		"
Point Lepreaux.....	Lighthouse.....		"
Partridge Island .....	" .....		"
St. John, N.B.....	Custom-house.....		"

## WEST OF QUEBEC.

Bridge Station.....	½ mile above new railway bridge on south shore.	6	Telephone.
St. Nicholas.....	At Tidal semaphore.....	12	"
Portneuf.....	In front lighthouse.....	31	"
Grondines.....	In old windmill tower.....	41	"
St. Jean Deschaillons.....	At tidal semaphore.....	45	"
Pointe Citrouille.....	Lighthouse.....	55	"
Three Rivers.....	Upper end of government wharf.	68	"
Sorel.....	Lower end of government wharf.	100	"
Vercheres .....	In old windmill tower.....	120	"
Longue Pointe.....	Point between wharves....	134	"
R—Montreal.....	La Sauvegarde building, Notre Dame street east.	139	"



WEST OF MONTREAL.

Name of Station.	Location.	Nautical miles. from Montreal.	Means of communication.
R—Lachine Canal.....	Lock No 2 .....	0	Telephone.
R—Lachine Canal.....	Lachine .....	8	"
R—Soulanges Canal .....	Cascades point .....	21	"
R—Soulanges Canal.....	Coteau Landing.....	33	"
R—Cornwall Canal.....	Cornwall.....	62	"
R—Galops Canal.....	Lift lock .....	99	Telegraph.
R—Welland Canal....	Port Dalhousie .....	298	"
R—Welland Canal.....	Port Colborne.....	321	"
R—Soo Canal.....	Sault Ste. Marie....	820	"

Stations marked thus “ R ” are reporting stations only, and are not equipped for signalling purposes.

All stations have been kept in good repair during the past season.

*Brief Summary of Work Performed.*

1. Stations report movements of vessels to Montreal, Quebec, Sydney, Halifax, or St. John.
2. Stations report weather conditions daily to Montreal, Quebec, Sydney, Halifax, or St. John.
3. Montreal, Quebec, and St. John publish daily bulletins giving weather and ice conditions and movements of vessels.
4. Montreal and Quebec publish daily bulletins showing the depth of water at various points in the river St. Lawrence ship channel.
5. The Signal Service offices at Montreal, Quebec, and St. John are open day and night for the purpose of furnishing the public with information of shipping matters.
6. The telegraph system of the Department of Public Works on the north shore of the gulf of St. Lawrence reports the movements of vessels engaged in the coasting trade to the Signal Service at Quebec.
7. The collectors of customs at all the seaports in the river and gulf of St. Lawrence, on the Atlantic coast and in the bay of Fundy report the arrival and departure of vessels engaged in the overseas trade.
8. Lloyds’ agents at Quebec are furnished daily with full information of the movements of vessels engaged in the overseas trade to and from ports in the province of Quebec.
9. Lloyds’ agents at St. John are furnished daily with full information of the movements of vessels engaged in the overseas trade to and from ports in the Maritime provinces.

*Improvements Carried out and Completed.*

The Signal Service at Halifax, St. John, North Sydney and Quebec, in the river and gulf of St. Lawrence and on the Great Lakes, and the telephonic and reporting service between Quebec and Montreal were combined on the 1st April, 1914, under the heading of Signal Service, with headquarters at Quebec. This consolidation has greatly facilitated the work and has led to many improvements.

An arrangement was made with the Department of Railways and Canals whereby their officials at the Lachine, Soulanges, Cornwall, Galops, Welland, and Sault Ste. Marie canals report several times daily to the Signal Service at Montreal, giving movements of vessels bound to Montreal and points east of that port. In this connec-



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tion a private telephone line has been established between the Signal Service office, Montreal, and the Canal office at Lachine. This service has proved itself to be very useful, especially to the shipping interests of the port of Montreal, and will be extended from time to time as conditions may warrant.

In August, the Batiscan signal station was closed and a new station was opened at Pointe Citrouille. This change was made for the purpose of showing the depth of water in the Cap à la Roche channel so that eastbound vessels might come to anchor at pointe Citrouille if necessary. In order to make this service reliable and prompt, an additional telephone line had to be installed between pointe Citrouille and Three Rivers connecting there with the line to St. Jean signal station. This gives a direct circuit between point Citrouille and St. Jean without interference from other stations.

It has been decided to close the Signal station at Verchères and to replace it by two new ones, one at cap St. Michel and one at Bellmouth curve. This arrangement will improve the service considerably, giving it better facilities for showing weather conditions on the river and for reporting the movements of vessels.

It has also been decided to establish signal stations in the lighthouses at point Tupper and Scutari island, and a reporting station in the Main à Dieu lighthouse. These stations will improve the service considerably, giving weather conditions and movements of vessels in territory not previously covered by the Signal Service.

## ICE-BREAKING, WINTER 1914-15.

QUEBEC, May 1, 1915.

SIR,—I have the honour to submit the following report on the work of the ice-breaking steamers *Lady Grey* and *Montcalm* during the winter of 1914-15.

Towards the close of the season of navigation of 1914, on November 18, the weather turned cold and continued so for about a week, causing the formation of a great deal of ice, much more than has been observed at a corresponding date for a number of years. The *Lady Grey* was sent to Three Rivers on November 24, and the *Bellechasse* on November 26, to be in readiness to aid incoming and outgoing ships should they require assistance in getting through the ice. The weather moderated shortly after the arrival of these two vessels at Three Rivers, and in a day or so the river was practically clear again, no special inconvenience having been caused to the shipping. The icebreakers, however, remained on "stand by" in case of a recurrence of the trouble and to help the buoy service when the buoys were being lifted. The last vessel the *Manchester Spinner* passed outwards at Three Rivers on December 4, and all the barges were lifted below this point by December 6, so the *Lady Grey* and the *Bellechasse* proceeded to Quebec, the former to prepare for ice-breaking work during the winter, and the latter to be laid up for the season.

The winter of 1914-15 was exceptionally mild, there being only two or three periods of a day or so each when the thermometer registered zero or below.

The ice bridge formed at Port St. Francis on December 10, and by December 22 was solid from this point up to Montreal.

From December 10, until January 31, the river was open from slightly below Port St. Francis to Quebec. On the latter date a bridge was formed at St. Pierre les Becquets, and by February 5 the ice had backed up to Port St. Francis.

Immediately after the ice took at St. Pierre, an attempt was made to send the *Lady Grey* up in order to cut out the jammed ice, but owing to unfavourable ice and weather conditions, she was not able to reach the jam. Had it been possible for this ship to reach St. Pierre shortly after the ice had formed, it would have been a small matter to break it up, and would have done away with the necessity of later on cutting out about 26 miles of ice between this point and Port St. Francis.

During the winter there were two serious ice-jams, one at the bridge and one in Quebec harbour.



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The first of these jams formed on December 26, and was the worst that has occurred since ice-breaking operations were undertaken seriously in 1909. The ice blocked from below Quebec bridge upwards as far as could be seen. The *Lady Grey* was alone at the time, as the *Montcalm* was absent on a trip to the gulf. After the *Lady Grey* had been engaged for two days endeavouring to break up this accumulation of ice, all expectations of being able to clear the channel were practically given up, but the work was still pushed ahead, and on January 29, they were successful in cutting the key. With the next rising tide the whole mass moved up stream. Work was carried on all day on December 30, breaking up the ice as it came down, and by evening the channel was once more free.

On February 4, an ice bridge was formed in the lower part of Quebec harbour, but was broken up by the *Lady Grey* and *Montcalm* after about twenty-four hours' work.

The ice stopped at the bridge two or three times during the winter, but was broken up without difficulty. Other jams might have occurred on several occasions, when the *Les Ecureuils* battures were coming down, but the icebreakers were able to meet these ice fields in the wide water stretch above Cap Rouge, and break them up, so that they passed through the narrows at the bridge without stopping.

The work of breaking up the ice in the upper reaches of the river began on March 8, slightly below St. Pierre les Becquets. Both ships were employed pretty steadily in these operations. By March 15 the river had been cleared to Three Rivers, and by March 24 to Nicolet traverse at the foot of lake St. Peter. The work was pushed ahead without interruption, and on April 3 the icebreakers had arrived at Sorel. As the ice in the lower end of the lake was getting dangerous, the *Lady Grey* was brought back for widening operations at the foot of lake St. Peter, and the *Montcalm* continued the cut upwards to a point 5 miles above Sorel, also widening and preventing the ice jamming in the Sorel islands. The ice in lake St. Peter moved on April 7, but it was not until April 14 that the channel was finally clear to Montreal. As a rule, one icebreaker is able to clear the lake in three days after the first movement has taken place, but this year, owing to the extremely low stage of the water, it took rather more than double the time, as the *Lady Grey* was unable to work as advantageously as usual.

The icebreakers were engaged for thirty-eight days clearing the river of ice from St. Pierre les Becquets to a point 5 miles above Sorel, a distance of 63 miles. This gives an average rate of advance of 1.66 mile per day. This 1.66 mile advance per day means river cleared of ice sufficiently wide to ensure that jamming will not occur. The thirty-eight days is the time that elapsed from the date the work began until it was finished. The actual working time was very much less, as there were delays from fog, being cut off by jams below, and other causes.

Ice-breaking operations have been carried on systematically since 1909 and, with the exception of the year 1912, there has been no flooding. In 1912 an ice-bridge formed at Cap Rouge, while the *Lady Grey* was above at Three Rivers. The *Montcalm* alone was not able to break up the jam at the bridge, and as a result the river was not clear until April 29. Heavy flooding occurred from Ste. Anne de la Parade upwards. These facts, in my opinion, prove conclusively that the work of the icebreakers, in so far as preventing floods is concerned, has proved a success.

The Department of Railways and Canals made the usual request to have the *Lady Grey* break up the bank of frazil ice which forms every winter at the lower entrance to the Soulanges canal. This work was performed on April 22, a week after the river was clear below Montreal, it being impossible to do it sooner, as the Lachine canal was not open.

I have the honour to be, sir,

Your obedient servant,

N. B. McLEAN,

*Resident Engineer.*



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## GENERAL INFORMATION.

The Cap à la Roche semaphore which shows the available depth of water in the dredged channel at Cap à la Roche was put in operation for the season on the 7th of May, 1914, and the St. Nicholas semaphore, showing the depth available over the undredged St. Augustin bar, on the 9th of May, 1914.

A new semaphore was established at pointe Citrouille lighthouse, to give the available depth of water in the dredged channel at Cap à la Roche, the depth being shown with large figures on the lighthouse pier.

Arrangements were made with the Bell Telephone Company for a special telephone wire to connect Cap à la Roche semaphore station with Pointe Citrouille semaphore, by which the operator at the former place can telephone to the latter place every 3 inches rise and fall of the tide. This enables deep-draught vessels outward bound to anchor at the new anchorage ground at Pointe Citrouille and wait for the tide to rise, if it is to be found that there is not sufficient depth of water to go through Cap à la Roche with safety.

This new addition to aids to navigation has given great satisfaction to the shipping interests. It was put in operation on the 8th October, 1914.

The Repentigny channel (steamboat channel) from Ile Ste. Thérèse to Lavaltrie was entirely completed to a depth of 15 feet at extreme low water. It was then buoyed out and opened to navigation.

The continuation of the Steamboat channel for light-draught vessels and tows through the islands opposite Sorel to lake St. Peter, by way of the "Grand chenal," was decided upon by the department, and the dredging was commenced and nearly completed during the last season. The depth of the channel to be 15 feet at extreme low water, with a minimum width of 400 feet.

It is proposed to build three lighthouses next season to mark the different courses, and as soon as completed the channel will be buoyed out and opened for navigation. This will avoid the delays and annoyance caused to ocean steamers by tows, at the bends in the vicinity of Stone island.

With the exception of about half a mile in length just below Pointe aux Trembles (opposite Ile aux Vaches) light-draught vessels and tows will be able to keep out of the Ship channel, from Montreal to lake St. Peter, a distance of 55 miles.

The Grondines channel (Horseback bar) was completed to a depth of 30 feet at extreme low water of 1897, and to a width of 450 feet. As soon as the new lights are built next season to mark the new centre line, the buoys will be shifted to give the increased width.

There still remains a short distance at the lower end of Cap Charles channel on the south half to deepen from  $27\frac{1}{2}$  feet ordinary low water to 30 feet at extreme low water, the difference between the two datums being 2 feet; the channel is therefore being dredged  $4\frac{1}{2}$  feet deeper than the old channel. This remaining part will be completed next season.

The widening of Cap Charles channel and curve is all completed. The lights to mark the new centre line of Cap Charles channel will be built next season. As soon as this is done, the buoys at the lower end will be moved to give the additional width.

Owing to the hard nature of the rock to be removed at Cap à la Roche channel and curve, and the large numbers of boulders to be lifted, the progress at this point has been slow; the widening, however, is nearly completed. The dredging so far has had the good effect of improving the direction of the current.

The widening of Varennes curve was completed to 650 feet. This was proved with the sounding scow and found clear for 30 feet at E.L.W. of 1897. The buoys will be placed next spring to give the additional width. Most of the curve, however, is dredged to 35 feet at extreme low water of 1897.







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The number of cubic yards dredged amounted to 97,526,885, the material varying from very hard shale rock to soft blue clay.

Year.	AVERAGE DEPTH FOR EACH MONTH IN THE 27½-FOOT CHANNEL. (27½ feet at ordinary low water.)							From Sorel Gauge during each year, May to November.	
	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Highest.	Lowest.
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
1890.....	35 6	35 3	31 9	30 6	30 9	29 9	30 6	37 0	29 0
1891.....	34 6	31 3	29 9	29 9	30 0	28 3	28 3	36 9	27 3
1892.....	31 0	31 9	31 6	30 6	28 9	28 3	28 3	33 6	27 3
1893.....	36 0	34 3	30 9	29 9	29 6	28 6	28 0	37 6	27 6
1894.....	34 6	31 9	31 0	29 2	28 3	28 9	29 0	36 0	27 7
1895.....	33 3	31 3	28 3	28 3	27 6	26 9	26 9	34 6	25 10
1896.....	33 6	30 6	28 9	28 0	27 6	27 9	29 0	37 0	27 4
1897.....	35 6	32 6	30 3	29 3	28 0	27 0	27 6	37 0	26 5
1898.....	31 6	30 9	29 8	28 2	28 2	28 3	28 6	32 1	26 9
1899.....	36 2	31 9	30 3	28 6	27 6	28 0	27 9	37 9	26 9
1900.....	33 6	30 9	30 6	29 6	28 1	28 9	29 2	35 9	27 4
1901.....	34 3	31 10	29 2	28 3	27 7	27 4	27 3	36 3	26 6
1902.....	32 2	32 2	32 2	29 4	28 1	28 1	29 0	34 1	27 6
1903.....	33 0	30 11	30 5	29 5	28 4	29 0	27 11	32 8	26 11
1904.....	36 3	34 5	30 9	29 5	29 5	30 4	29 3	37 4	28 1
1905.....	31 10	30 8	29 7	29 0	28 0	28 5	28 1	33 6	27 1
1906.....	32 4	31 5	29 3	27 11	27 3	27 4	27 6	33 3	26 9

AVERAGE DEPTH FOR EACH MONTH IN THE 30-FOOT-CHANNEL.  
(30 feet at extreme low water of 1897.)

1907.....	37 1	35 9	34 3	32 10	32 4	32 9	33 7	38 3	31 10
1908.....	41 5	37 10	33 10	32 10	32 0	31 0	30 6	42 4	30 0
1909.....	40 6	37 6	33 10	33 2	32 7	32 4	31 6	42 7	30 11
1910.....	35 7	34 5	32 3	31 7	31 6	31 6	31 7	37 1	30 7
1911.....	36 6	34 6	32 1	31 3	30 9	30 2	30 3	38 1	29 4
1912.....	37 9	37 6	33 6	32 8	32 6	32 6	34 9	40 11	31 3
1913.....	37 0	34 4	32 8	31 10	31 6	32 1	32 7	38 6	31 1
1914.....	35 2	33 0	32 4	31 4	31 3	30 11	31 0	36 10	30 3



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COST OF SHIP CHANNEL TO DATE—Table showing the total Cost of Dredging and Plant, and the Quantities Dredged to March 31, 1915.

	Cost of Dredging	Expenditure for Plant, Shops Surveys, etc.	Quantities Dredged
	\$ cts.	\$ cts.	Cubic Yards.
MONTREAL HARBOUR COMMISSIONERS, 1851 to 1888.			
Dredging Montreal to Cap à la Roche to 27½ feet, at O.L.W. and from Cap à la Roche to Quebec to 27½ feet at half tide.....	3,402,494 35	534,809 65	19,865,693
DEPARTMENT OF PUBLIC WORKS.			
Dredging consisting of widening and cleaning up of Channel, deepening Cap à la Roche to Cap Charles to 27½ feet at O.L.W., and dredging at Grondines, Lotbinière and Ste. Croix 1889 to June 30, 1899...	829,583 08	486,971 79	3,558,733
PROJECT OF 1899.			
Dredging channel between Montreal and Quebec to 30 feet at lowest water of 1897, also widening to a minimum width of 450 feet and straightening.			
Fiscal Year 1899-1900 . . . . .	100,191 01	265,270 78	1,107,894
" " 1900-1901.....	136,680 83	287,040 04	2,479,385
" " 1901-1902.....	185,429 80	479,731 47	3,098,350
" " 1902-1903.....	255,776 55	277,703 50	6,544,605
" " 1903-1904 . . . . .	276,958 59	308,765 44	4,619,260
DEPARTMENT OF MARINE AND FISHERIES.			
This includes the work below Quebec.			
Fiscal Year 1904-1905 . . . . .	311,087 93	277,225 69	2,716,220
" " 1905-1906.....	431,768 30	317,327 37	4,047,530
" " 1906-1907 (July 1, 1906 to March 31, 1907).	302,677 37	275,003 61	3,001,010
" " 1907-1908 . . . . .	478,209 66	417,390 22	4,831,875
" " 1908-1909.....	497,686 03	340,861 86	5,896,737
" " 1909-1910.....	572,950 71	321,375 80	6,354,285
" " 1910-1911.....	576,838 02	488,248 88	5,600,050
" " 1911-1912.....	588,697 60	499,799 58	4,509,904
" " 1912-1913.....	663,229 74	430,107 86	6,929,344
" " 1913-1914.....	895,235 59	426,018 12	6,140,867
" " 1914-1915.....	1,036,846 65	327,975 71	6,225,143
	11,542,341 81	6,761,627 37	97,526,885

DREDGING OPERATIONS.

*Elevator Dredge No..1 (Laval).*—This dredge was constructed in Ottawa in 1894, and is therefore the oldest dredge of the ship channel fleet. The hull is of wood and the dredge buckets are made of cast-steel for work in rock or other hard material.

During the winter of 1913-14 the machinery, etc., of this dredge was given a thorough overhauling and put into good shape for the next season's work.

The details of the operations for the fiscal year, beginning April 1, 1914, were as follows:—

Dredge *No. 1* left Sorel on May 5 and was taken up to Montreal harbour where she arrived the following day. She was laid out in St. Mary's current; several days were lost before she was ready for work, as it takes time and care to place the anchors



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in the swift current at that point. She began work on May 11, dredging to 30 feet at extreme low water of 1897, the material being sand, stones, and boulders. Operations were carried on here all season until November 24, when *No. 1* was brought into winter quarters at Sorel.

Owing to the irregular nature of the dredged cut, which consisted mostly of leveling off the tops of small shoals, and also to the fact that the material was hard and the current very swift, the total amount of material dredged was not as large as it would have been had the cut been more regular.

From August until September 11 work was only carried on during daylight, as the current was too strong to work with safety at night. A great deal of stoning had to be done with the aid of a stone lifter, from September 28 until the end of the season. The stone lifter is operated alongside the dredge, and the latter cannot work when stones are being picked up.

In a total of 168 days during which dredge *No. 1* was at work, her machinery was in actual operation 68 per cent of the full working time. The total number of cubic yards dredged amounted to 86,703 at a cost of \$64,870.28 or 74.82 cents per cubic yard.

*Elevator Dredge No. 2 (Laurier).*—The hull of this dredge is also of wood having been constructed at the government shipyard at Sorel in 1897. She is equipped with a set of cast-steel buckets, especially designed for work in rock or other hard material.

During the winter of 1913-14 the deck, hull and machinery of this dredge were given a thorough overhauling.

The details of the operations of this dredge for the fiscal year beginning April 1, 1914, were as follows:—

Dredge *No. 2* left Sorel on May 4 and was taken up to Varennes curve, where she was laid out the same day to widen and deepen the channel to 35 feet at low water of 1897; the material to be dredged being clay. She worked there until June 13.

On this date *No. 2* was brought down to Sorel, where she remained until June 16, having some repairs made to the boilers. She was then taken down to Cap à la Roche curve and laid out to widen and deepen the channel to 30 feet at low water of 1897; the material to be removed being hard shale, rock and boulders. Work was carried on here until October 16.

This dredge lost a good deal of time at Cap à la Roche curve as there were a great many stones and boulders which had to be lifted by means of a stone lifter. Time was also lost on October 8, 9 and 10, making repairs to the bow winch.

*No. 2* left Cap à la Roche on October 16 and laid out at Varennes curve on October 19, where she continued the work of widening, and deepening the channel to 35 feet at low water of 1897 until November 25, when she was taken into winter quarters at Sorel.

In a total of 169 days during which dredge *No. 2* was at work, her machinery was in actual operation 51 per cent of the full working time.

The total number of cubic yards dredged amounted to 124,104 at a cost of \$58,701.03 or 47.30 cents per cubic yard.

*Elevator Dredge No. 3 (Lady Aberdeen).*—The hull of this dredge is of steel, the complete vessel having been constructed at the Sorel shipyard in 1900. The buckets are of cast-steel, for working in hard material.

During the winter of 1913-14 the hull and deck were put in good order, and the machinery overhauled and repaired.

The details of the operations of this dredge for fiscal year April 1, 1914, were as follows:—

On May 4, dredge *No. 3* left Sorel and was taken up to Pointe aux Trembles channel and laid out on May 5, to deepen the channel to 35 feet at low water of 1897, the material to be dredged being clay. She continued working there until June 6.



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On June 6, *No. 3* was taken down the river and laid out at Grondines on June 9 to widen and deepen the channel to 30 feet at low water of 1897; the material there being clay, stones, and boulders. She worked steadily at Grondines until September 30.

During the time that *No. 3* was employed at Grondines she was considerably delayed as a good many stones and boulders had to be raised with the aid of a stone lifter. Time was also lost from August 31 to September 4, repairing buckets and fitting a new tumbler, and again from September 11 to September 15 making repairs to the top winch.

*No. 3* left Grondines on September 30 and was taken back to Pointe aux Trembles and re-laid out there on October 2, to continue the work of deepening the channel to 35 feet. She continued dredging operations there until November 25, when she was taken into winter quarters at Sorel.

The working time of dredge *No. 3* was 172 days, the dredge being in actual operation 63 per cent of the full working time.

The total number of cubic yards removed amounted to \$199,507 at a cost of \$58,-553.74 or 29.35 cents per cubic yard.

*Elevator Dredge No. 4 (Lady Minto).*—This dredge is of the same type and design as *No. 3*, and was constructed at the Sorel shipyard in 1900. *No. 4* is also provided with cast-steel buckets for dredging rock and other hard material.

During the winter of 1913-14, this dredge received repairs to her deck and hull, and her machinery was overhauled.

The details of the operations during the season commencing April 1, 1914, were as follows:—

Dredge *No. 4* left Sorel May 4, and was taken to Pointe aux Trembles channel where she was laid out on May 5 to deepen the channel to 35 feet at low water of 1897; the material to be removed being clay, sand, and stones. The dredge was employed throughout the season in this channel, and was brought back to Sorel on November 25 to go into winter quarters.

In a total of 173 days, during which dredge *No. 4* was at work, her machinery was in actual operation 71 per cent of the full working time.

The total number of cubic yards dredged amounted to 142,050 at a cost of \$58,-854.83 or 41.43 cents per cubic yard.

*Elevator Dredge No. 5 (Lafontaine).*—This dredge was constructed at the Sorel shipyard, and was completed in 1901. The hull is of wood, and she is fitted out with cast-steel buckets and has breasting winches of a new type, using wire rope instead of chains for side moorings.

During the winter of 1913-14 the deck, hull, and machinery were given a thorough overhauling.

The details of the operations of this dredge for the fiscal year beginning April 1, 1914, were as follows:—

Dredge *No. 5* left Sorel on May 4, and was laid out at Varennes curve the same day to widen and deepen the channel to 35 feet at low water of 1897; the material to be dredged being clay. She worked at Varennes until June 12, when she was taken to Montreal and put into the floating dock for repairs to her hull. These repairs were completed on June 22.

On June 22, *No. 5* was taken down and laid out in St. Sulpice channel, where she was employed until June 26 clearing up some lumps in the new steamboat channel, dredging to a depth of 15 feet at low water of 1897; the material being clay.

She was taken down to Sorel on June 26, and was delayed there two days on account of a heavy northeast wind, and arrived at Cap à la Roche curve on July 1. The dredge was then laid out to deepen the channel to 30 feet at low water of 1897; the material being shale rock. She continued working at Cap à la Roche until November 11.



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*No. 5* was taken up river again on November 11 and laid out at Varennes curve on November 14. She worked there until November 25, when she was brought into winter quarters at Sorel.

The working time of dredge *No. 5* was 159 days, the dredge being in actual operation 58 per cent of the full working time.

The total number of cubic yards amounted to 219,716, at a cost of \$68,367.27, or 31.11 cents per cubic yard.

*Elevator Dredge No. 6 (Baldwin).*—This dredge was constructed at the Sorel shipyard in 1902, the hull being of wood. *No. 6* is provided with large built-up buckets for work in soft material, but with sufficient teeth to enable her to work in hardpan, etc.

During the winter of 1913-14 the hull and deck of this dredge were put in good order, the machinery was overhauled and repaired, and a new shoot pump was installed.

The details of the operations of this dredge for the fiscal year beginning April 1, 1914, were as follows:—

Dredge *No. 6* left Sorel on May 11 and was taken up the St. Sulpice channel, where she was laid out on May 13 to deepen to 15 feet at low water of 1897; the material being clay and gravel. She worked there until June 4.

On June 4, *No. 6* was brought down to Champlain channel and laid out the next day to clean up some filling that had taken place. She worked there until October 1.

The filling, in Champlain channel having been all cleaned up, *No. 6* was moved down to Batture Perron on October 1 to dredge out some silting that had occurred there. She finished this on October 22.

She left Batture Perron October 22, and was taken up to the head of the "Grand chenal" (new steamboat channel) and laid out the same day to dredge to 15 feet at low water of 1897; the material being clay. This channel lies between Ile Ste. Ignace and Ile de Grace, and joins the ship channel again below Stone island. It is intended for the use of light-draught vessels and tows, in order to relieve the ship channel between Sorel and lake St. Peter of such traffic. She finished the season at the "Grand chenal," going into winter quarters at Sorel on November 21.

Dredge *No. 6* lost time from June 6 to June 13 owing to the water being too high, on account of wind, and repairs; July 20 and 21, removing tumbler bush, and again September 1 and 2 changing tumbler.

In a total of 161 days during which this dredge was at work her machinery was in actual operation 47 per cent of the full working time.

The total number of cubic yards removed amounted to 179,650, at a cost of \$57,158.42 or 31.82 cents per cubic yard.

*Hydraulic Dredge No. 7 (J. Israel Tarte).*—The hull of this dredge is of steel of the same type and general design as the steel hulls of the elevator dredges. She was constructed in 1902 by the Polson Ironworks Company, of Toronto, Canada.

During the winter of 1913-14 this dredge was given a general overhauling. Two new funnels were fitted in place of old ones, discharge pipe outside the hull was renewed, alterations were made to the forced-draught, and twenty-four pontoons were overhauled and repaired.

The details of the operations of this dredge for the fiscal year beginning April 1, 1914, were as follows:—

Dredge *No. 7* left Sorel on May 25, and was laid out at the foot of curve No. 3, lake St. Peter on May 26, to deepen the channel to 35 feet at low water of 1897; the material being clay and stones. Work was carried on here until October 1, when the deepening of this curve was completed, and the cut carried through to connect with the deepening already done on the tangent from No. 3 curve to White Buoy curve.



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On October 1, *No. 7* was moved up to the foot of curve No. 1, lake St. Peter, and set to work there to deepen to 35 feet. She continued operations at No. 1 curve until November 7, when she was brought into Sorel.

From November 9 to December 2 this dredge was engaged excavating material at the mouth of the Richelieu river. The dredged material was deposited as filling, behind the new wharf at the government shipyard at Sorel.

In a total of 141 days during which this dredge was at work, her machinery was in actual operation 55 per cent of the full working time.

The total number of cubic yards removed amounted to 1,985,665 at a cost of \$140,-299.04 or 7.07 cents per cubic yard.

*Hydraulic Hopper Dredge No. 8 (Beaujeu).*—Steel hull, twin screw. This dredge was constructed at the Sorel shipyard, and completed in 1907.

During the winter of 1913-14 the air chamber opposite hoppers were cleaned by sand blast, old fenders were renewed, centrifugal pump was repaired, new cutter head was fitted, the system of overboard discharge was changed, engines, winches, and boilers were overhauled and repaired.

The details of the operations during the season commencing April 1, 1914, were as follows:—

Owing to the changes that were made on the overboard discharge pipes, dredge *No. 8* was not ready for work until May 29. She left Sorel on that date, proceeded to her station in the north channel below Quebec, arriving there the same day and began operations dredging to a depth of 35 feet at extreme low water, and 1,000 feet wide; the material being clay, sand, and stones. She continued working in the North channel until July 28.

On July 28, *No. 8* came over to the south channel and was laid out at St. Thomas bank to clean up some filling that had taken place there. She remained there until August 6.

The unsettled condition created by the declaration of war, and the fact that the *Bellechasse* was turned over to the Naval Service, leaving only one tug to look after the dredges, made it unsatisfactory to operate the two dredges below Quebec so far apart, so on August 6 the *Beaujeu* was brought back to the north channel and continued working there until November 25; on this date she came into Quebec, was coaled and proceeded to Sorel where she arrived on November 28, and went into winter quarters.

Dredge *No. 8* lost some time throughout the season owing to repairs that were necessitated on account of breakages and for wind.

In a total of 145 days during which this dredge was at work, her machinery was in actual operation 75 per cent of the full working time.

The total number of cubic yards removed was 1,170,200 at a cost of \$103,774.84, or 8.87 cents per cubic yard.

*Suction Hopper Dredge No. 9 (Galveston).*—Steel hull, twin screw.

During the winter of 1913-14 the compartments opposite hoppers were cleaned and painted, fenders repaired, deck over forecastle strengthened and caulked, a new dynamo was installed, three 30-inch gate valves were fitted to discharge pipe and the pipe renewed, main engines, boilers, and winches were overhauled and repaired.

The details of the operations of this dredge for the fiscal year beginning April 1, 1914, were as follows:—

Dredge *No. 9* left Sorel May 6, arrived at Quebec on May 7, and went into dry dock the same day for repairs to tail-end shafts, bulkhead, and for scraping and painting. When replacing the propellers, one of them was broken. She left dry dock on May 19, but had to wait until May 29 before a new propeller could be cast and fitted. She began work in the north channel below Quebec on May 30, dredging to



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35 feet at extreme low water, 1,000 feet wide, the material being clay, sand, and stones; and continued working there until November 24, when she was brought to Quebec to go into dry dock for the winter.

This dredge was delayed to some extent owing to breakages and wind, but was retarded less than usual this season from these causes.

The working time of dredge *No. 9* was 153 days. She was in actual operation 74 per cent of the full working time.

The total number of cubic yards removed amounted to 740,300 at a cost of \$73,206.98, or 9.89 cents per cubic yard.

*Dipper Dredge No. 10.*—Steel hull. This dredge was constructed at the government shipyard at Sorel, Que., and completed in 1910.

During the winter of 1913-14 all necessary repairs were made to dredge *No. 10* at Sorel, Que., and certain important improvements made which delayed the placing of the dredge in commission as early as usual in the spring. *No. 10* commenced work on June 6, clearing up in front of the government wharves at Sorel.

On June 19 she was laid out to dredge on the new steamboat channel, by way of the Grand chenal to lake St. Peter, to a depth of 15 feet, at extreme low water of 1897, and a width of 400 feet. The dredge worked in this channel until July 1, the material removed being very soft clay.

*No. 10* was then taken to Sorel to replace the short dipper arm for the longer one, for working in Montreal harbour. She was towed up to Montreal, reaching there on July 7, and was immediately laid out to work on the channel approach to the floating dock basin, dredging to 30 feet at E.L.W. Dredge *No. 10* continued working there until September 16, when she was laid out to widen the ship channel through Longueuil shoal, on the south side, the material being hard-pan and stones. *No. 10* worked here until the end of the season, and was taken down to Sorel to go into winter quarters on November 23.

During the season of 1914 the working time of dredge *No. 10* was 124 days. She was in actual operation 50 per cent of the full working time.

The number of cubic yards removed amounted to 155,650 at a cost of \$61,352.85, or 39.42 cents per cubic yard.

*Dipper Dredge No. 11.*—This dredge was constructed at the Sorel shipyard and was completed in 1911. Steel hull.

During the winter of 1913-14 the hull and machinery of this dredge were given a general overhauling; a new dipper arm and buckets were supplied.

The details of the operations of this dredge for the fiscal year beginning April 1, 1914, were as follows:—

Dredge *No. 11* left Sorel on May 9, and was taken up to Montreal harbour, arriving the same day. She was laid out at the approach of the floating dock on May 12, to dredge to a depth of 30 feet at low water of 1897; the material to be removed being hard-pan. She worked there throughout the season, and was brought into winter quarters at Sorel on November 27.

This dredge was retarded a good deal during the season owing to breakages. The most serious of these delays were as follows: from June 2 to 16, repairs to keeper of starboard anchor box; July 13 to 14, dipper door being repaired; August 19, 20, and 21, repairs to dipper; August 26 to September 1, repairs to dipper; November 9 to 12, repairs to dipper; November 13 to 16, fitting new main hoisting wire; November 17 to 21, repairs to dipper.

The working time of dredge *No. 11* was 145 days, the dredge being in actual operation 53 per cent of the full working time.

The total number of cubic yards removed amounted to 268,250 at a cost of \$54,933.77 or 20.48 cents per cubic yard.



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*Elevator dredge No. 12.*—This dredge was constructed at the Sorel shipyard, and was completed in 1912. Her hull is of steel. *No. 12* is fitted out with large cast-steel buckets for rock work, and can dredge to the depth of 52 feet. The breasting winches are similar to those in elevator dredge *No. 5*, using wire cables instead of chains.

During the winter of 1913-14 the dredge was given a general overhauling.

The details of the operations of this dredge for the fiscal year beginning April 1, 1914, were as follows:—

Dredge *No. 12* was brought up to Pointe aux Trembles channel on May 7, and laid out to deepen the channel to 35 feet at low water of 1897, the material being shale rock and clay. She worked there until May 30. On the latter date she was taken down river, remaining a day at Sorel for repairs to one of the winches, and arrived at Cap à la Roche curve on June 2, where she was laid out to deepen the channel to 30 feet at low water of 1897, the material to be dredged being shale rock. She continued working at Cap à la Roche curve until November 18.

*No. 12* left Cap à la Roche November 18, and was brought up to Ste. Anne Traverse and laid out November 19, to deepen the channel to 35 feet at low water of 1897; the material being clay. Very little work was done there as the dredge was greatly delayed by snow and wind. She was brought into winter quarters at Sorel, November 24.

The working time of dredge *No. 12* was 166 days, the dredge being in actual operation 50 per cent of the full working time.

The total number of cubic yards removed amounted to 177,366 at a cost of \$65,512.15 or 36.94 cents per cubic yard.

*Elevator Dredge No. 13.*—This dredge was constructed at the Sorel shipyard, and was completed in 1913. Her hull is of steel. *No. 13* is fitted out with large cast-steel buckets for rock work, and can dig to a depth of 52 feet. The breasting winches are similar to those on elevator dredge *No. 5*, using wire cables instead of chains.

During the winter of 1913-14, *No. 13* received only light overhauling as she was new, only having been put in commission in the spring of 1913.

The details of the operations of this dredge for the fiscal year beginning April 1, 1914, were as follows:—

Dredge *No. 13* was brought up from Sorel to Pointe aux Trembles channel on May 5, and laid out to deepen to 35 feet at low water of 1897; the material to be removed being sand, rock, and clay. She worked there until June 8. On this date *No. 13* was removed to Grondines, beginning operations there on June 10. She was employed at Grondines from June 10 until October 17, widening and deepening the channel to 30 feet at low water of 1897; the material dredged was clay, stones, and boulders.

*No. 13* left Grondines, October 17, and was taken up and laid out at Pointe aux Trembles channel on October 19, where she continued working until the end of the season.

On November 17 one of her dumping scows was sunk, and the crew was employed from that date until November 21 moving this scow from the edge of the channel to a position of safety on the south bank, where it could easily be lifted in the spring. *No. 13* was then taken to Sorel to go into winter quarters.

The working time of dredge *No. 13* was 166 days, the dredge being in actual operation 60 per cent of the full working time.

The total number of cubic yards removed amounted to 275,182, at a cost of \$67,928.80, or 24.68 cents per cubic yard.

*Self-Propelling Elevator Dredge No. 14.*—Steel hull, single screw; length between perpendiculars, 215 feet 0 inch; breadth moulded, 37 feet 5 inches; depth moulded, 14 feet 0 inch; mean draught, 9 feet 8 inches; speed, 8 knots; greatest working depth,



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55 feet; built by the Collingwood Shipbuilding Company in 1914; steel buckets, 1 cubic yard capacity; working capacity per hour in clay, 800 cubic yards.

Dredge *No. 14* arrived at Sorel under her own steam from Collingwood on May 19, 1914. Several details as agreed with the builders had to be completed at the government shop at Sorel, also several necessary adjustments had to be made to suit the work in which the dredge was to be immediately engaged. After this was finished, dredge *No. 14* was taken out and laid out near Ile Ste. Ignace, opposite Sorel, and was operated for some time until the dredge's machinery was working satisfactorily. On August 3, *No. 14* was taken up and placed to begin operations at the foot of St. Ours traverse (Contrecoeur channel) deepening the channel to 35 feet at extreme low water, the material dredged being clay and some stones.

The dredge worked only during the day while the crew was being broken to the work. On September 14 the dredge began working day and night shifts. Much time was lost owing to trouble with the dumping scows.

On October 14, *No. 14* was taken down to Sorel to have repairs made to the lower tumbler, and returned to work again on the 20th.

On November 23, dredge *No. 14* was taken down to Sorel to go into winter quarters.

The working time of *No. 14* was 89 days, the dredge being in actual operation 62 per cent of the full working time. The total number of cubic yards removed amounted to 213,200, at a cost of \$52,552.50, or 24.65 cents per cubic yard.

*Self-propelling Elevator Dredge No. 15.*—Steel hull, single screw; length between perpendiculars, 215 feet 0 inches; breadth moulded, 37 feet 5 inches; depth moulded, 14 feet 0 inches; mean draught, 9 feet 8 inches; speed, 8 knots; greatest working depth, 55 feet; built by the Collingwood Shipbuilding Company in 1914; steel buckets, 1 cubic yard capacity; working capacity per hour in clay, 800 cubic yards.

Dredge *No. 15* arrived at Sorel under her own steam from Collingwood on May 19, 1914. Several details as agreed with the builders had to be completed at the Government Shipyard at Sorel, also several adjustments had to be made to suit the work in which the dredge was to be immediately engaged. As soon as this was completed, dredge *No. 15* was laid out near Ile Ste. Ignace, opposite Sorel, Que., and was operated for some time to test the different parts until the machinery was working satisfactorily. On August 11, she left Ile Ste. Ignace and went up to St. Ours traverse (Contrecoeur channel), where she was laid out to work to deepen the channel to 35 feet at extreme low water. The dredged material was clay and some stones.

*No. 15* was operated during the day only, while the crew was being trained. On September 14 she began working day and night. Much time was lost by this dredge owing to the dumping scows giving trouble.

On October 14, *No. 15* went down to the shipyard at Sorel to have repairs made to her lower tumbler; after these were completed, she returned to St. Ours traverse on October 16.

Dredge *No. 15* continued working at St. Ours traverse until November 23, when she picked up anchors and left for Sorel to go into winter quarters.

The working time of *No. 15* was 84 days, the dredge being in actual operation 58 per cent of the full working time.

The total number of cubic yards removed amounted to 287,600 at a cost of \$50,780.15 or 17.66 cents per cubic yard.

The total number of cubic yards removed by the dredging fleet in the ship channel between Montreal and Quebec, during the fiscal year ending March 31, 1915, amounted to 4,314,643 at a total cost of \$859,864.83, or 19.93 cents per cubic yard.

The total number of cubic yards removed by dredges *No. 8 (Beaujeu)* and *No. 9 (Galveston)* in the ship channel below Quebec during the fiscal year ending March 31, 1915, amounted to 1,910,500, at a total cost of \$176,981.82, or 9.26 cents per cubic yard.



The total number of cubic yards removed by the whole of the dredging fleet during the fiscal year ending March 31, 1915, amounted to 6,225,143, at a total cost of \$1,036,846.65 or 16.66 cents per cubic yard.

PROGRESS OF DREDGING OPERATIONS at Date of Writing, the Close of the Season, 1914  
(30-foot Project).

Locality.	Distance English Miles.	Total length requiring Dredging.	Length Dredged in 1914.	Total length of 30 foot Channel Dredged.	Length yet to be Dredged.
		Miles.	Miles.	Miles.	Miles.
Division 1— Montreal to Sorel.....	45	22.90	.....	22.90	All completed.
Division 2— Sorel to Batiscan.....	36	12.45	.....	12.45	All completed.
Division 3— Lake St. Peter.....	20	18.00	.....	<sup>1</sup> 0.20	
Division 4— Batiscan to Quebec.....	59	10.00	0.45	<sup>2</sup> 17.80 8.25	1.75
Division 5— Quebec to the Traverse.....	60	6.65	.....	4.65	2.00
Total.....	220	70.00	0.45	66.25	3.75

<sup>1</sup> Not widened.    <sup>2</sup> Widened.



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PROGRESS OF THE DREDGING OPERATIONS at the Date of Writing, the Close of the Season of 1914 (30-foot Project).—*Concluded.*

Locality.	Length of Dredging.		Cubic yards yet required to be done.
	Required.	Done.	
	Miles.	Miles.	
Division 1—			
Longueuil Shoal.....		1.10	
Longue Pte. to Pte. aux Trembles (E.H.).....		5.05	
Ilo Ste. Thérèse.....		0.40	
Varennnes to Cap St. Michel.....		3.00	
Cap St. Michel to Verchères.....		4.50	
Verchères Traverse.....		1.10	
Verchères to Contrecoeur.....		1.70	
Contrecoeur Channel.....		6.05	
Total.....		22.90	
Division 2—			
Sorèl to Ile de Grace.....		4.40	
Stone Island.....		1.10	
Ile aux Raisins.....		0.25	
Lake St. Peter (See Div. 3).....			
Port St. Francis.....		0.50	
Three Rivers.....		0.50	
Cap Madeleine to Becancour.....		1.55	
Becancour to Champlain.....		2.25	
Champlain to Pte. Citrouille.....		1.30	
Batture Perron.....		0.60	
Total.....		12.45	
Division 3—			
Lake St. Peter.....		10.20	200,000
		<sup>2</sup> 17.80	
Total..		18.00	200,000
Division 4—			
Batiscan to Cap Levrard.....		3.00	
Cap à la Roche Channel.....	0.50	1.50	100,000
Pouillier Rayer.....		1.20	
Cap Charles.....	0.05	0.85	60,000
Grondines.....		0.80	
Lotbinière.....		0.40	
Cap Santé.....		0.20	
Ste-Croix.....	0.60	0.30	300,000
St. Augustin.....	0.60		500,000
Total. . .	1.75	8.25	960,000
Division 5—			
Quebec to The Traverse.....	2.00	4.65	550,000
Total. ....	2.00	4.65	550,000
Totals.....	3.75	66.25	1,710,000
Cubic yards yet to be done.....			1,710,000
Cubic yards done.....			73,878,000
Total.....			75,588,000

<sup>1</sup>Not widened.      <sup>2</sup>Widened.



PROGRESS OF DREDGING OPERATIONS at Date of Writing, the Close of the Season of 1914 (35-foot Project).

Locality.	Distance English Miles.	Total Length Requiring Dredging.	Length Dredged in 1914.	Total Length of 35 Foot Channel Dredged.	Length Yet to be Dredged.
		Miles.	Miles.	Miles.	Miles.
Division 1— Montreal to Sorel.....	45	28·63	2·35	4·12	24·51
Division 2— Sorel to Batiscan .....	36	19·75	0·01	1·25	18·50
Division 3— Lake St. Peter .....	20	18·32	2·67	15·23	3·09
Division 4— Batiscan to Quebec .....	59	15·54			15·54
Division 5— Quebec to Goose Cape..... (North Channel).	66	8·14		0·75	7·39
Total.....	226	90·38	5·03	21·35	69·03



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PROGRESS OF THE DREDGING OPERATIONS at the Date of Writing, the Close of the Season, 1914 (35-foot Project).—*Concluded.*

Locality.	Length of Dredging in Miles.		Cubic Yards Yet to be Dredged.	Cubic Yards Dredged.
	Yet to be Done.	Done.		
Division 1—				
Longueuil Shoal.....	1.88		573,259	
Longue Pte Traverse.....	0.47		426,222	
Longue Pte Curve.....	1.32		657,546	
Pte aux Trembles Channel.....	2.12	1.82	1,655,782	747,650
Ile Ste Therese Channel.....	1.12		275,100	
Varennas Curve.....	1.21	1.37	457,302	1,919,275
Cap St. Michel Curve.....	0.56		385,000	
Cap St. Michel to Verchers.....	4.72		2,273,832	
Vercheres Traverse.....	1.24		452,241	
Vercheres to Contrecoeur.....	1.91		857,837	
Contrecoeur Channel.....	7.35	0.93	4,720,681	500,800
Lanoraie to Sorel.....	0.61		119,466	
Totals Division 1.....	24.51	4.12	12,854,268	3,167,725
Division 2—				
Sorel to Ile de Grace.....	3.73	1.25	2,100,710	820,000
Stone Island.....	2.11		941,015	
Ile aux Raisins.....	2.09		910,000	
Port St. Francis.....	1.00		632,981	
Three Rivers.....	0.72		410,147	
Cap Madeleine to Becancour.....	2.40		979,118	
Becancour to Champlain.....	1.16		717,500	
Champlain to Pte Citrouille.....	4.06		1,706,759	
Batture Perron.....	1.23		456,000	
Totals Division 2.....	18.50	1.25	8,854,230	820,000
Division 3—				
Lake St. Peter.....	3.09	15.23	1,302,141	9,463,913
Division 4—				
Batiscan to Cap Levrard.....	4.48		2,386,168	
Cap Levrard Channel.....	1.27		781,666	
Cap à la Roche Curve.....	2.06		1,836,859	
Cap Charles Channel.....	2.04		1,077,416	
Grondines.....	0.83		513,332	
Lotbinière.....	0.47		321,480	
Cap Santé.....	1.51		655,561	
Ste Croix.....	1.47		798,518	
St. Augustin.....	1.41		826,207	
Totals Division 4.....	15.54		9,197,207	
Division 5—				
Quebec to Goose Cape (North Channel).....				
Madame Reef Shoal.....	2.84		2,585,132	
West Sand and East Narrows Shoals.....	4.55	0.75	6,541,241	7,026,800
Totals Division 5.....	7.39	0.75	9,126,373	7,026,800
Totals.....	69.03	21.35	41,334,219	20,478,438



ABSTRACT of Work of Dredging Fleet During Fiscal Year ended March 31, 1915.

Dredge.	Locality of Dredging.	Time of Service.	Nominal work hours, 24 per day.	Hours actual dredging.	Number of scows filled.	Number of cubic yards dredged (scow measurement.)	Depth of dredging at low water.	Width in feet.	Character of Soil.	Remarks.
		Days.	Hours.				Ft. In.	Feet.		
<i>Leval</i> (No. 1) .....	Montreal harbour (Ship Channel) .....	168	3,584	2,440 <sup>3</sup>	285	86,703	30 0	600	Sand, stones and boulders .....	Captain G. Baron. Captain R. Matte.
	Varennnes curve, .... Cap à la Roche curve.	67 102	1,464 2,244	898 1,015	461 246	80,675 43,429	35 0 30 0	550 to 600 450 to 550	Clay .... Shale rock and boulders.	
		169	3,708	1,903	707	124,104				
<i>Lady Aberdeen</i> (No. 3) .....	Pte. aux Trembles channel .....	76 96	1,668 2,112	1,108 <sup>1</sup> 1,266 <sup>1</sup>	541 545	99,925 99,582	35 0 30 0	450 450	Clay .... Clay, stones and boulders.	Captain Noël Baron.
		172	3,780	2,375	1,086	199,507				
<i>Lady Minto</i> (No. 4) .....	Pte. aux Trembles channel .....	173	3,804	2,710 <sup>1</sup>	754	142,050	35 0	450	Clay (hard) .....	Captain Joe, Peloquin.
	Varennnes curve .....	44	972	602	425	74,375	35 0	550 to 600	Clay ....	Captain Jos. St. Pierre.
	St. Sulpice channel .... Cap à la Roche curve.	4 111	96 2,448	56 <sup>1</sup> 1,392	37 804	5,180 140,161	15 0 30 0	300 450 to 550	" Shale rock.	
<i>Baldwin</i> (No. 6) .....		159	3,516	2,050 <sup>1</sup>	1,266	219,716				
	St. Sulpice channel .... Champlain channel ... Batture Perron .....	16 101 17	396 1,998 372	244 <sup>1</sup> 970 <sup>1</sup> 154 <sup>1</sup>	19 613 76	3,050 122,600 15,200	15 0 30 0 30 0	300 450 450	Clay and gravel. ... Sand (cleaning up). Clay and stones (cleaning up).	Captain A. Morin.
	Grand Chenal .....	27	588	216 <sup>1</sup>	194	38,800	15 0	400	Clay.	
		161	3,354	1,566 <sup>1</sup>	902	179,650				



<i>J. Israel Tarte</i> (No. 7)...	Lake St. Peter, curve No. 3 . . . . .	108 33	2,292 612	1,286½ 315½	..... .....	1,785,165 200,500	35 35	0 0	450 to 650 450	Clay and some stones. Clay and stones.	Captain C. Lavallee.
	Ile aux Raisin Traverse.	141	2,904	1,602	.....	1,985,665					
<i>Beaujeu</i> (No. 8) . . . . .	North Channel West Sand . . . . .	137 8	2,988 180	2,215 142	754 8	1,166,800 3,400	35 30	0 0	1,000 1,000	Sand, gravel and stones. Very soft blue clay (cleaning up).	Captain A. Bourget.
	St. Thomas channel . . .	145	3,168	2,387	762	1,170,200					
<i>Galveston</i> (No. 9) . . . . .	North channel west sand . . . . .	153	3,312	2,450½	621	740,300	35	0	1,000	Sand, gravel and stones.	Captain A. Hoffman.
<i>Dipper Dredge</i> (No. 10).	Grand Chenal . . . . .	9	160	92	60	18,000	15	0	400	Clay . . . . .	Captain Corme Beau- lac.
	Montreal harbour float- ing dock approach. . . .	59	1,150	577	292	83,650	30	0	900 to		
	Longueuil shoal . . . . .	56	1,120	537	206	54,000	30	0	1,500 500	Hard pan. "	
		124	2,430	1,206	558	155,650					
<i>Dipper Dredge</i> (No. 11).	Montreal harbour float- ing dock approach. . . .	145	2,830	1,501	916	268,250	30	0	900 to 1,500	Hard pan . . . . .	Captain W. Lebeau.
<i>Elevator Dredge</i> (No. 12).	Pte. aux Trembles channel . . . . .	20 143	432 3,144	210½ 1,612½	100 645	30,000 145,566	35 30	0 0	450 450	Shale rock and clay. . . Shale rock.	Captain Alex. Morin.
	Cap Charles channel . .	3	72	13	8	1,800	35	0	450	Clay.	
	Ste. Anne Traverse . . .	166	3,648	1,835½	753	177,366					
<i>Elevator Dredge</i> (No. 13).	Pte. aux Trembles channel . . . . .	55 111	1,200 2,448	814½ 1,371	619 653	143,250 131,532	35 30	0 0	450 450	Sand, rock and clay. . . Clay, stones and boul- ders.	Captain Paul Carlin.
	Grondines . . . . .	166	3,648	2,185½	1,272	275,182					
<i>Elevator Dredge</i> (No. 14).	St. Ours Traverse. . . . .	89	1,508	927½	533	213,200	35	0	450	Clay . . . . .	Captain J. Gou- dreault.
<i>Elevator Dredge</i> (No. 15).	St. Ours Traverse. . . . .	84	1,542	889½	719	287,600	35	0	450	" . . . . .	Captain J. Robidoux.
		.....	.....	.....	.....	6,225,143					



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CLASSIFICATION of Disbursement for the

Vessels.	Fuel.	Wages.	Board.	Stores and Materials.	Repairs and Labour.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Dredge <i>Laval</i> (No. 1).....	6,821 08	9,162 73	2,918 33	5,949 74	14,024 15
Tug <i>Varennas</i> .....	4,652 03	5,115 96	1,940 15	1,029 65	2,829 93
Dredge <i>Laurier</i> (No. 2) .....	7,708 87	9,104 88	2,911 02	2,206 63	12,470 19
Tug <i>Chambly</i> .....	2,529 94	4,675 22	1,568 04	709 98	4,854 71
Dredge <i>Lady Aberdeen</i> (No. 3).....	6,682 12	9,359 50	2,840 62	3,659 52	14,442 22
Tug <i>Emilia</i> ...	2,785 81	4,105 79	1,462 10	699 52	2,566 10
Dredge <i>Lady Minto</i> (No. 4) .....	6,255 12	9,401 29	2,860 42	3,874 56	12,161 76
Tug <i>Iberville</i> .....	3,235 86	4,904 38	1,750 14	1,050 19	3,387 98
Dredge <i>Lafontaine</i> (No. 5).....	9,857 62	9,860 27	3,116 45	3,862 06	12,465 87
Tug <i>Lac St. Pierre</i> .....	4,983 31	4,996 35	1,873 07	1,527 95	5,134 20
Dredge <i>Baldwin</i> No. 6 .....	6,699 36	9,263 97	2,844 71	5,448 69	12,500 78
Tug <i>Lanoraie</i> .....	2,285 31	4,120 40	1,468 80	700 29	1,980 84
Dredge <i>J. Israel Tarte</i> (No. 7).....	33,366 63	17,751 88	5,176 39	12,225 52	29,670 53
Tug <i>Lotbiniere</i> .....	3,587 27	5,060 35	1,854 88	1,133 07	3,629 44
Tug <i>Carmelia</i> ..	2,445 26	2,590 69	850 50	525 32	6,744 00
Dredge <i>Beaujeu</i> (No. 8).....	22,376 80	22,067 14	6,615 54	5,538 45	26,897 60
" <i>Galveston</i> (No. 9) .....	18,800 60	14,935 78	4,142 09	2,221 30	15,131 91
Tug <i>Jas. Howden</i> { Divided equally between Nos. 8 and 9.	3,246 21	5,383 90	2,005 46	1,650 98	6,403 37
Dipper Dredge (No. 10).....	7,265 82	9,849 91	2,713 09	3,397 27	16,054 80
Tug <i>Contrecocur</i> ....	3,482 92	4,884 24	1,746 83	1,351 37	2,869 74
Dipper Dredge (No. 11).....	6,882 32	9,971 20	2,849 08	3,340 54	11,700 89
Tug <i>Portneuf</i> .....	2,831 91	4,382 00	1,608 20	1,066 20	3,048 41
Elevator Dredge (No. 12).....	11,139 36	9,905 68	3,217 99	6,840 46	9,272 93
Tug <i>Laviolette</i> .....	4,067 05	4,971 26	1,845 25	1,319 23	2,458 01
Elevator Dredge (No. 13).....	11,484 61	10,010 90	3,314 44	7,437 29	10,301 25
Tug <i>Lavaltrie</i> ..	5,144 55	4,891 49	1,818 47	1,196 81	1,671 91
Elevator Dredge (No. 14) .....	7,308 56	7,666 20	1,983 70	2,309 04	10,903 15
Tug <i>Becancour</i> .....	3,444 52	3,271 04	1,180 44	730 64	4,257 10
Elevator Dredge (No. 15) .....	7,128 06	7,494 84	1,935 10	2,513 13	10,615 46
Tug <i>Deschaillons</i> .....	3,477 76	2,848 26	966 17	1,019 38	3,417 49
Str. <i>Frontenac</i> ... { Divided equally	3,764 50	6,136 65	2,465 66	1,805 55	5,161 45
Str. <i>De Levis</i> .... { $\frac{1}{5}$ to each	4,713 75	6,099 43	2,391 80	1,411 49	3,547 08
Tug <i>Jessie Hume</i> { Dredge.	3,181 13	2,800 42	902 14	676 00	1,629 93
Stone-lifter No. 3. { Divided equally	200 25	1,489 71	436 70	255 03	1,608 95
Stone-lifter No. 4.. { between Elev.	412 25	1,920 63	429 82	306 69	968 73
Rock-cutter No. 1.. { Dredges.	2,507 25	4,439 07	1 561 61	1,755 86	2,354 85
Floating Shop.....		997 09	495 38	180 70	1,895 77
Construction for Dredging Fleet—					
Construction No. 58, Completion.....					
Improvements to Sorel Shipyard—					
Shear Legs, completion.....					
Building No. 16, power-house ext.....					
" No. 28, complet. of Oil shed.....					
" No. 29, new Joiner shop.....					
" No. 30, new Fleet Stores.....					
Wharf No. 4, extension.. ..					
Derrick Scow No. 1, reconstruction..					
Steam Boxes, completion .....					
Wharf No. 4, raising level of ground..					
Shipyard, general.....					
Water Levels Investigation re River					
St. Lawrence Ship Channel.. ..					
Totals. ....	236,785 77	255,890 50	82,060 58	92,925 50	291,033 48



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Fiscal Year, ended March 31, 1915.

Expendi- ture: New Plant, Re-building Shipyard, etc.	Proportion of Gen- eral and Office Ex- penses, etc.	Expenditure for each Vessel.	Floating Shop, Rock- crusher and Stone Lifter Ser- vice, Eleva- tor Dredges.	Tug Service.	Inspection Towing, Sweeping, etc.	Total Cost of Operations of each Dredge and Plant during Fiscal Year.	Total Expenditure on Different Appropri- ations.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
.....	3,169 09	42,045 12	2,622 22	16,836 76	3,366 18	64,870 28	
.....	1,269 04	16,836 76					
.....	2,804 36	37,205 95	2,622 22	15,506 68	3,366 18	58,701 03	
.....	1,168 79	15,506 68					
.....	3,014 86	39,998 84	2,622 22	12,566 50	3,366 18	58,553 74	
.....	947 18	12,566 50					
.....	2,816 70	37,369 85	2,622 22	15,496 58	3,366 18	58,854 83	
.....	1,168 03	15,496 58					
.....	3,192 43	42,354 70	2,622 22	20,024 17	3,366 18	68,367 27	
.....	1,509 29	20,024 17					
.....	2,996 40	39,753 91	2,622 22	11,416 11	3,366 18	57,158 42	
.....	860 47	11,416 11					
.....	8,004 32	106,195 27		30,737 58	3,366 19	140,299 04	
.....	1,244 37	16,509 38					
.....	1,072 43	14,228 20					
.....	6,806 38	90,301 91		10,106 74	3,366 19	103,774 84	
.....	4,502 37	59,734 05		10,106 74	3,366 19	73,206 98	
.....	1,523 56	20,213 48					
.....	3,202 10	42,482 99		15,503 67	3,366 19	61,352 85	
.....	1,168 57	15,503 67					
.....	2,832 26	37,576 29		13,991 29	3,366 19	54,933 77	
.....	1,054 57	13,991 29					
.....	3,291 40	43,667 82	2,622 22	15,855 92	3,366 19	65,512 15	
.....	1,195 12	15,855 92					
.....	3,468 46	46,016 95	2,622 22	15,923 44	3,366 19	67,928 80	
.....	1,200 21	15,923 44					
.....	2,459 45	32,630 10	2,622 21	13,934 00	3,366 19	52,552 50	
.....	1,050 26	13,934 00					
.....	2,419 98	32,106 57	2,622 21	12,685 18	3,366 19	50,780 15	1,036,846 65
.....	956 12	12,685 18					
.....	1,576 05	20,909 86					
.....	1,480 65	19,644 20					
.....	749 11	9,938 73					
.....	325 30	4,315 94					
.....	331 57	4,399 09					
.....	1,028 64	13,647 28					
.....	296 93	3,859 87					
1,104 32							1,104 32
405 72							
12,046 45							
100 22							
1,354 88							
8,790 85							
22,936 58							
803 49							
422 56							
3,044 06							
230 90							50,135 71
							17,101 25
51,240 03	78,150 82	1,036,846 65	26,222 18	230,691 36	50,492 79	1,036,846 65	1,105,187 93



DETAILS of Dredging Locality and Cost per Cubic Yard.

Dredges.	Total cost of opera- tions and plant during Fiscal Year.	No. of days in opera- tion each dredge.	Cost per day, opera- tions of dredges and plant.	Days working, each locality.	Cost of work, each locality.	Total cost of opera- tions of each dredge.	Number of cubic yards dredged in each locality.	Total cubic yards for each dredge.	Cost per cubic yard, each locality.	Average cost per cubic yard for each dredge.	Kind of Material dredged.	Locality of dredging.
	% cts.		% cts.		% cts.	% cts.			Cts.	Cts.		
Dredge <i>Laral</i> (No. 1).	64,870 28	168	386 13	168	64,870 28	64,876 28	86,703	86,703	74 82	74 82	Sand, stones and boulders	Montreal harbour (ship channel).
Dredge <i>Laurier</i> (No. 2)	58,701 03	169	347 34	67 102	23,272 01 35,429 02	58,701 03	80,675 43,429	124,104	28 85 81 58	47 30	Clay..... Shale rock and boulders.	Varennes curve. Cap à la Roche curve.
Dredge <i>Lady Aberdeen</i> (No. 3).	58,553 74	172	340 43	76 96	25,872 57 32,681 17	58,553 74	99,925 96,582	199,507	25 89 32 82	29 35	Clay..... Clay, stone and boulders.	Pte. aux Trembles channel (Grondines).
Dredge <i>Lady Minto</i> (No. 4).	58,854 83	173	340 20	173	58,854 83	58,854 83	142,050	142,050	41 43	41 43	Clay (hard).....	Pte. aux Trembles channel
Dredge <i>Lafontaine</i> (No. 5).	68,367 27	159	429 98	44 4 111	18,919 24 1,719 93 47,728 10	68,367 27	74,375 5,186 140,161	219,716	25 44 33 20 34 05	31 11	Clay..... Clay..... Shale rock.....	Varennes curve. St. Sulpice channel. Cap à la Roche curve.
Dredge <i>Balthrin</i> (No. 6)	57,158 42	161	355 02	16	5,680 34	57,158 42	3,050	3,050	186 24	186 24	Clay and gravel.....	St. Sulpice channel.
				101	35,857 14		122,600		29 25	29 25	Sand (cleaning up).....	Champlain channel.
				17	6,035 36		15,200		39 71	39 71	Clay & stones (cleaning up)	Batture Perron.
				27	9,585 58		38,800		24 70	24 70	Clay.....	Grand Chenal.
Dredge <i>J. Israel Thériault</i> (No. 7).	140,299 04	141	995 02	108 33	107,463 10 32,835 94	140,299 04	1,785,165 200,500	179,650	6 02 16 37	31 82	Clay and some stones... Clay and stones.....	Lake St. Peter (curve No. 3) Ile aux Raisins Traverse.
Dredge <i>Beaujeu</i> (No. 8)	103,774 84	145	715 69	137 8	98,049 34 5,725 50	103,774 84	1,166,800 3,400	1,985,665	8 40 168 40	7 07	Sand, gravel and stones.. Very soft blue clay (clean- ing up)	North Channel West Sand St. Thomas channel (below Quebec).
Dredge <i>Galveston</i> (No. 9).	73,206 98	153	478 48	153	73,206 98	73,206 98	740,300	740,300	9 89	9 89	Sand, gravel and stones..	North Channel West Sand (below Quebec)
Dipper Dredge (No. 10)	61,352 85	124	494 78	9 59	4,453 03 29,192 08	61,352 85	18,000 83,650		24 74 34 90	39 42	Clay..... Hard pan..... Hard pan.....	Grand Chenal. Floating dock approach (Montreal harbour). Longueuil shoal.



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Dipper Dredge (No. 11)	54,933 77	145	378 85	145	54,933 77	54,933 77	268,250	268,250	20 48	20 48	Hard pan	Floating deck approach (Montreal harbour).
Elevator Dredge (No. 12).	65,512 15	166	391 65	20	7,892 17	56,436 00	30,000	145,566	26 31	20 48	Shale rock and clay	Pte. aux Trembles channel
				143	56,436 00	1,183 98	1,800	177,366	38 77	20 48	Shale rock	Cap Charles channel.
				3	1,183 98				65 77	36 94	Clay	Ste. Anne Traverse.
Elevator Dredge (No. 13).	67,928 80	166	409 21	55	22,506 53	45,422 27	143,250	131,932	15 71	24 68	Sand, rock and clay	Pte. aux Trembles channel
				111	45,422 27				34 43	24 68	Clay, stones and boulders	Grondines.
Elevator Dredge (No. 14).	52,552 50	89	590 48	89	52,552 50		213,200	275,182	24 65	24 65	Clay	St. Ours Traverse.
	50,780 15	88	604 52	81	50,780 15		287,600	213,200	17 66	17 66	Clay	St. Ours Traverse.
								257,600				
	1,036,846 65	2215		2215	1,036,846 65	1,036,846 65	6,225,143	62,225,113				



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## DREDGING FLEET.

The following is a description of the dredging plant at the end of the season 1914, owned and operated by the Department of Marine in connection with the River St. Lawrence ship channel between Montreal and Father Point:—

*Dredges.*

*The elevator dredge "Laval" (No. 1).*—Wooden hull; length over all, 150 feet; breadth of beam, 30 feet; depth of hold, 14 feet; average draught, 11 feet; greatest working depth, 42 feet; hull built at Ottawa, in 1894; steel buckets; working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The Elevator Dredge "Laurier" (No. 2).*—Wooden hull; length over all, 163 feet; breadth of beam, 32 feet; depth of hold, 14 feet; average draught, 10 feet; greatest working depth, 45 feet; built at Sorel shipyard in 1897; steel buckets, working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The elevator dredge "Lady Aberdeen" (No. 3).*—Steel hull; length over all, 148 feet; breadth of beam, 32 feet; depth of hold, 13 feet; average draught, 8.5 feet; greatest working depth, 42.5 feet; built at Sorel shipyard in 1900; steel buckets; greatest working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The elevator dredge "Baldwin" (No. 6).*—Wooden hull; length over all, 165 feet; breadth of beam, 32 feet; depth of hold, 13 feet; average draught, 8.5 feet; greatest working depth, 42.5 feet; built at Sorel shipyard in 1900; steel buckets; working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The elevator dredge "Lafontaine" (No. 5).*—Wooden hull; length over all, 168 feet; breadth of beam, 32 feet; depth of hold, 14 feet; average draught, 9 feet; greatest working depth, 45 feet; built at Sorel shipyard in 1901; steel buckets; working capacity per day in hard material, 1,000 to 2,000 cubic yards.

*The elevator dredge "Baldwin" (No. 6).*—Wooden hull; length over all, 165 feet; breadth of beam, 34 feet; depth of hold, 14 feet; average draught, 8 feet; greatest working depth, 42 feet; built at Sorel shipyard in 1902; one-cubic-yard buckets strengthened for fairly hard material; working capacity per day in medium material, 2,500 to 3,500 cubic yards.

*The hydraulic dredge "J. Israel Tarte" (No. 7).*—Steel hull; length over all, 160 feet; breadth of beam, 42 feet; depth of hold, 12.5 feet; average draught, 6 feet; length of suction pipe, 80 feet; greatest working depth, 47 feet; built at Polson Iron Works, Toronto, 1902; working capacity per day in soft material, 12,000 to 20,000 cubic yards.

*Discharge Pipe and Pontoons of Dredge "J. I. Tarte" (No. 7).*—Twenty-seven lengths of pipe, 36 inches diameter by 100 feet long; one length of pipe 36 inches diameter by 35 feet long; twenty-seven pairs of pontoons for floating pipes, 42 inches diameter by 90 feet long.

*Scow No. 24, Pontoon Anchor Scow for Dredge "No. 7."*—Wooden hull; length over all, 63 feet; breadth of beam, 27 feet; depth of hold, 8 feet; built at Sorel shipyard in 1909.

*Scow No. 27, for Dredge "J. I. Tarte, No. 7."*—Wooden hull; length over all, 60 feet; breadth of beam, 18 feet; depth of hold, 6 feet; built at Sorel shipyard in 1902.



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*The Sea-going Suction Hopper Dredge "Beaujeu" (No. 8).*—Steel hull; twin screw; length between perpendiculars, 264 feet; breadth of beam, 45 feet; depth of hold, 20 feet; capacity of hoppers, 2,000 cubic yards in forty-five minutes; greatest working depth, 65 feet; draught, when loaded, 15 feet; ordinary speed, 9 statute miles; built in Sorel shipyard in 1907.

*The Suction Hopper Dredge "Galveston" (No. 9).*—Steel hull; twin screw; length over all, 233 feet; breadth of beam, 39 feet; depth of hold, 15.5 feet; draught when loaded with 1,800 tons, 14 feet 9 inches aft, and 13 feet 1 inch forward; greatest working depth, 55 feet; built in Germany, 1904; two suction pumps, Dutch type, 3.5 feet outside diameter, working capacity, 1,350 cubic yards in 45 minutes; hopper capacity, 1,500 cubic yards.

*Dipper Dredge "No. 10."*—Steel hull; length moulded, 132.5 feet; breadth moulded, 42 feet; depth at bow, 11.5 feet; depth at stern, 9.7 feet; length of spuds, 74 feet; bucket capacity, one 11-yard for soft material, one 9-yard for hard material; capable of dredging to 50 feet; built at Sorel shipyard in 1910.

*The Dipper Dredge "No. 11."*—Steel hull; length moulded, 132.5 feet; breadth moulded, 42 feet; depth at bow, 11.8 feet; depth at stern 13.5 feet; length of spuds, 74 feet; bucket capacity, one 11-yard for soft material, one 9-yard for hard material; capable of dredging to 50 feet; built at Sorel shipyard in 1911.

*The Elevator Dredge "No. 12."*—Steel hull; length over all, 180 feet; breadth of beam, 40 feet; depth of hold, 12.8 feet; average draught, 9 feet; greatest working depth, 52 feet; built at Sorel shipyard in 1912; steel buckets; working capacity per day in hard material, 2,000 to 4,000 cubic yards.

*The Elevator Dredge "No. 13."*—Steel hull; length over all, 180 feet; breadth of beam, 40 feet; depth of hold, 12.8 feet; average draught, 9 feet; greatest working depth, 52 feet; built at Sorel shipyard in 1913; steel buckets; working capacity per day in hard material 2,000 to 4,000 cubic yards.

*Self-propelling Elevator Dredge "No. 14."*—Steel hull; single screw; length between perpendiculars, 215 feet 0 inches; breadth moulded, 37 feet 5 inches; depth moulded, 14 feet 0 inches; mean draught, 9 feet 8 inches; speed, 8 knots; greatest working depth, 55 feet; built by the Collingwood Shipbuilding Company in 1914; steel buckets, 1 cubic yard capacity; Manganese steel lip; working capacity per hour in clay, 800 cubic yards; Lloyds' 100 A. 1. dredger class.

*Self-propelling Elevator Dredge "No. 15."*—Steel hull; single screw; length between perpendiculars, 215 feet 0 inches; breadth moulded, 37 feet 5 inches; depth moulded, 14 feet 0 inches; mean draught, 9 feet 8 inches; speed, 8 knots; greatest working depth, 55 feet; built by the Collingwood Shipbuilding Company in 1914; steel buckets 1 yard capacity, Manganese steel lip; working capacity per hour in clay 800 cubic yards; Lloyds' A. 1. dredger class.

### *Tugs.*

*The Ice-breaking and Emergency Tug "Lady Grey."*—Steel hull; twin screw; length between perpendiculars, 172 feet; length over all, 183 feet 6 inches; breadth moulded, 32 feet; breadth extreme, 32 feet 3 inches; depth moulded, 18 feet; draught mean to bottom of flat plate keel (normal) 12 feet; draught when ice-breaking, about 13 feet; displacement in tons at 12-foot draught, 1,070; mean speed, at 12-foot draught on six runs over measured mile base, 14 knots; built by Vickers Sons & Maxim, Ltd., Barrow-in-Furness, England, 1906.



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The *Tug 'Bellechasse'*.—Steel hull; twin screw; length between perpendiculars, 130 feet; breadth moulded, 27 feet; draught aft, 10 feet 3 inches; draught forward, 8 feet 9 inches; indicated horse-power, 1,000; built by the Kingston Shipbuilding Co., Kingston, Ont., in 1913.

The *Tug "Frontenac"*.—Composite hull; twin screw; length over all, 113 feet; breadth of beam, 23 feet; depth of hold, 10 feet; average draught, 9 feet; built at Sorel shipyard in 1902.

The *tug "De. Levis,"*—Wooden hull; twin screw; length over all, 104 feet; breadth of beam, 20 feet; depth of hold, 10 feet; average draught, 8 feet; built at Sorel shipyard in 1902.

The *Tug "James Howden,"*—Wooden hull; twin screw; length over all, 100 feet; breadth of beam, 21 feet; depth of hold, 10 feet; average draught, 7.5 feet; built at Sorel shipyard in 1903.

The *Tug "Iberville."*—Steel hull; single screw; length over all, 90 feet; breadth of beam, 18 feet; depth of hold, 12 feet; average draught, 10 feet; built at Sorel shipyard in 1897.

The *Tug "Lac St. Pierre."*—Wooden hull; twin screw; length over all, 100 feet; breadth of beam, 21 feet, depth of hold, 10 feet; average draught, 7.6 feet; built at Sorel shipyard in 1901.

The *Tug "Portneuf."*—Wooden hull; single screw; length over all, 85 feet; breadth of beam, 17.3 feet; depth of hold, 9.8 feet; average draught, 8 feet; built at Sorel shipyard in 1905.

The *Tug "Chambly."*—Wooden hull; single screw; length over all, 84 feet; breadth of beam, 18 feet; depth of hold, 9.5 feet; average draught, 9 feet; built at Sorel shipyard in 1893.

The *Tug "Emilia."*—Wooden hull; single screw; length over all, 84 feet; breadth of beam, 17 feet; depth of hold, 9 feet; average draught, 8 feet; built at Sorel shipyard in 1898.

The *Tug "Lanoraie."*—Wooden hull; single screw; length over all, 84 feet; breadth of beam, 17 feet; depth of hold, 9 feet; average draught, 8 feet; built at Sorel shipyard in 1901.

The *Tug "Jessie Hume."*—Wooden hull; single screw; length over all, 72 feet; breadth of beam, 17.2 feet; depth of hold, 10 feet; average draught, 8.5 feet; built at St. Catharines, Ont., in 1876.

The *Tug "Lotbinière."*—Wooden hull; twin screw; length over all, 80 feet; breadth of beam, 23 feet; depth of hold, 8 feet; average draught, 7 feet; built at Sorel shipyard in 1903.

The *Tug "Carmelia."*—Wooden hull; single screw; length over all, 84 feet; breadth of beam, 17 feet; depth of hold, 9 feet; average draught, 8 feet; purchased in 1904.

The *Tug "Contrecoeur."*—Wooden hull; twin screw; length over all, 90 feet; breadth of beam, 22.7 feet; depth of hold, 9 feet; average draught, 7 feet; built at Sorel shipyard in 1910.

The *Tug "Varennnes."*—Wooden hull; twin screw; length over all, 96 feet; breadth of beam, 22 feet; depth of hold, 9 feet; average draught, 7 feet; built at Sorel shipyard in 1911.



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*The Tug "Laviolette."*—Steel hull; twin screw; length over all, 92 feet; breadth of beam, 22 feet; depth of hold, 9.3 feet; average draught, 7 feet; built at Sorel shipyard in 1912.

*The Tug "Lavaltrie."*—Steel hull; twin screw; length over all, 92 feet; breadth moulded, 22 feet; depth moulded, 10 feet; average draught, 6 feet 6 inches; built at Sorel shipyard in 1913.

*The Tug "Becancour."*—Steel hull; twin screw; length over all, 100 feet; breadth moulded, 22 feet 6 inches; depth moulded, 10 feet; depth of hold, 9 feet; average draught, 7 feet; capacity of fire pumps, 1,200 gallons (U.S.) per minute; built at Sorel shipyard in 1914.

*The Tug "Deschaillons."*—Steel hull; twin screw; length over all, 100 feet; breadth moulded, 22 feet 6 inches; depth moulded, 10 feet; depth of hold, 9 feet; average draught, 7 feet; fire pumps similar to those on *Becancour* to be installed; built at Sorel shipyard in 1914.

*Coal Barges, Etc.*

*Coal Barge "No. 1."*—Wooden hull; length over all, 120 feet; breadth of beam, 24 feet; depth of hold, 10 feet; built at Sorel shipyard in 1898.

*Coal Barge "No. 2."*—Wooden hull; length over all, 125 feet; breadth of beam, 25 feet; depth of hold, 11 feet; built at Sorel shipyard in 1900.

*Coal Barge "No. 3."*—Wooden hull; length over all, 98 feet; breadth of beam, 28 feet; depth of hold, 12 feet; built at Sorel shipyard in 1902.

*Coal Barge "No. 4."*—Wooden hull; length over all, 98 feet; breadth of beam, 28 feet; depth of hold, 12 feet; built at Sorel shipyard in 1903.

*Coal Barge "No. 5."*—Steel hull; length over all, 127 feet; breadth of beam, 32 feet; depth of hold, 10 feet; built at Sorel shipyard in 1911.

*Stone Lifter "No. 3."*—Wooden hull; length over all, 108 feet; breadth of beam, 34 feet; depth of hold, 14 feet; built at Sorel shipyard in 1903.

*Stone Lifter "No. 4."*—Steel hull; length over all, 100 feet; breadth of beam, 32 feet; depth of hold, 12 feet; built at Sorel shipyard in 1910.

*Stone Lifter "No. 5."*—Steel hull; length over all, 100 feet; breadth moulded, 36 feet; depth moulded, 9 feet 10 inches; depth of hold, 8 feet 7 inches; lifting capacity, 60 tons; built at Sorel shipyard in 1914.

*Rock Cutter "No. 1."*—Steel hull; length over all, 100 feet; breadth of beam, 36 feet; depth of hold, 9.3 feet; weight of ram, 25 tons; hull and machinery built by the Lobnitz & Co., Renfrew, Scotland, and re-erected at Sorel shipyard in 1912.

*The Self-propelling Hopper Barge "No. 1."*—Steel hull; single screw; length between perpendiculars, 180 feet; breadth moulded, 32 feet; depth moulded, 14 feet 6 inches; average draught, 12 feet; deadweight on above draft, 785 tons; indicated horse-power, 500; net capacity of hopper, 530 cubic yards; built by Messrs. Geo. T. Davie & Sons, Lévis Que., in 1913.

*Sounding Scow "No. 1."*—Wooden hull; length over all, 60 feet; breadth of beam, 25 feet; depth of hold, 6 feet; built at Sorel shipyard in 1898.



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*Sounding Scow "No. 2."*—Wooden hull; length over all, 75 feet; breadth of beam, 38 feet; depth of hold, 5 feet; transferred from Prescott Agency in 1909, re-modelled and improved in Sorel shipyard.

*Sounding Scow "No. 3."*—Wooden hull; length over all, 76 feet; breadth of beam, 32 feet; depth moulded, 7 feet 4½ inches; built at Sorel shipyard in 1913.

*Floating Shop.*—Wooden hull; length over all, 90.3 feet; breadth of beam, 25 feet; depth of hold, 9 feet; one forge, one scraper, one emery wheel, one drill, one lathe, one 6-horse-power Foss gasoline engine; living quarters for four men; built at Sorel shipyard in 1908.

#### *Winch Scows.*

*Scow "No. 28."*—Winch scow used for fleet in general; length over all, 60 feet; breadth of beam, 18 feet; depth of hold, 7 feet; built at Sorel shipyard in 1908.

*Scow "No. 21."*—Winch scow used for fleet in general; length over all, 40 feet; breadth of beam, 20 feet; depth of hold, 6 feet; built at Sorel shipyard in 1908.

#### *Hopper Dumping Scows with Hydraulic Power for Closing Gates.*

*No. 1 and No. 2.*—Wooden hulls; with hydraulic power for closing gates; length over all, 97 feet; breadth of beam, 24.5 feet; depth of hold, 9 feet; capacity, 200 cubic yards. built at Sorel shipyard in 1897.

*No. 3 and No. 4.*—Wooden hulls; with hydraulic power for closing gates; length over all, 90 feet; breadth of beam, 18 feet; depth of hold, 7 feet; capacity, 150 cubic yards; built at Sorel Shipyard in 1898.

*No. 5, No. 6, No. 7 and No. 8.*—Wooden hulls; with hydraulic power for closing gates; length over all, 97 feet; breadth of beam, 24 feet; depth of hold, 9 feet; capacity, 200 cubic yards; built at Sorel shipyard in 1899 and 1901.

*No. 9, No. 10, No. 11, No. 12, and No. 13.*—Wooden hulls; with hydraulic power for closing gates; length over all, 98 feet; breadth of beam, 24 feet; depth of hold, 9.5 feet; capacity, 300 cubic yards; built at Sorel shipyard, two in 1901 and three in 1902.

*No. 14 and No. 15.*—Wooden hulls; with hydraulic power for closing gates; length over all, 97 feet; breadth of beam, 24.5 feet; depth of hold, 9 feet; capacity, 300 cubic yards; built at Sorel shipyard in 1904 and 1905.

*No. 16 and No. 17.*—Wooden hulls; with hydraulic power for closing gates; length over all, 93 feet; breadth of beam, 24.5 feet; depth of hold, 8 feet; capacity, 250 cubic yards; built at Sorel shipyard in 1909.

*No. 18 and No. 19.*—Wooden hulls; with hydraulic power for closing gates; length over all, 93 feet; breadth of beam, 24.5 feet; depth of hold, 8 feet; capacity, 250 cubic yards; built at Sorel shipyard in 1911.

*Two Dumping Scows.*—Wooden hulls; with hydraulic power for closing gates; length over all, 93 feet; breadth of beam, 26.5 feet; depth of hold, 8.5 feet; capacity, 250 cubic yards; built at Sorel shipyard in 1912.

*No. 22 and No. 23.*—Wooden hulls; with hydraulic power for closing gates; length over all, 93 feet; breadth of beam, 26.5 feet; depth of hold, 8.5 feet; capacity, 200 cubic yards; built at Sorel shipyard in 1913.



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No. 25 and No. 26.—Steel hulls; with hydraulic power for closing gates; length over all, 100 feet; breadth of beam, 29 feet; depth moulded, 9 feet 3 inches; capacity, 235 cubic yards; built at Sorel shipyard in 1913.

Four Dumping Scows for Dredges “Nos. 14 and 15.”—Steel hulls, with hydraulic power for closing gates; length over all, 140 feet; breadth moulded, 30 feet; depth moulded, 11 feet 9 inches; depth of hold, 10 feet 11 inches; capacity, 450 cubic yards; built at Sorel shipyard in 1914.

Sand Scow.—Steel hull; with hydraulic power for closing gates; length over all, 106.5 feet; breadth of beam, 21 feet; depth of hold, 10 feet; capacity, 200 cubic yards; built at Sorel shipyard in 1912.

Derrick Scow.—Used at Sorel shipyard in connection with construction and repairs to dredging fleet; length over all, 40 feet; breadth of beam, 20 feet; depth of hold, 5 feet; equipped with derrick of 5-tons lifting capacity.

Summary.

Dredges.. . . .	15
Tugs.. . . .	20
Coal barges.. . . .	5
Stone lifters.. . . .	3
Rock cutters.. . . .	1
Hopper barges.. . . .	1
Sounding scows.. . . .	3
Floating shops.. . . .	1
Winch scows.. . . .	4
Dumping scows.. . . .	30
Derrick scows.. . . .	1
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## APPENDIX No. 4.

## SOREL SHIPYARD.

SOREL, June 14, 1915.

SIR,—I have the honour to submit the following report of work done at Sorel shipyard during the fiscal year ending 31st March, 1915.

At the beginning of the year, the finish up of repairs and the outfitting of all the vessels of the fleet were completed, and vessels made ready for the summer season's operations.

During April, the crews were taken on and all the necessary supplies put on board.

The Richelieu river was clear of ice on the 12th April, and the St. Lawrence, so far as we are concerned, on the 25th April.

The first of the fleet left Sorel 4th May, 1914, to be placed at work on the ship channel.

During the season, the vessels were all maintained in good condition and had the necessary operating repairs carried out.

The principal repairs to the vessels during the fiscal year were as follows:—

## DREDGES.

## No. 1—

*Summer Repairs.*—This vessel had general operating repairs carried out during the season, to hull and machinery.

*Winter Repairs.*—Had repairs to the sheathing of the well, to rails, stanchions, and deck-houses. Cotton canvas awnings were replaced by wooden panels; also general repairs made to bucket frame and chute. Hull and deck work outside and inside were painted, and sundry repairs carried out.

*Machinery.*—Readjustment of large wheel of main engine; general overhauling of main engine, breasting, bow, and stern winches, and sundry other repairs were effected.

*Boiler.*—Repairs were made to smokestack, a few boiler tubes were renewed, and a new set of grate bars supplied, seams caulked.

## No. 2—

*Summer.*—Had ordinary operating repairs to hull and machinery carried out.

*Winter.*—One new upper tumbler, and one new lower tumbler shaft and bush, and two new rollers on ladder frame were supplied; the bottom of chute was renewed, general repairs to deck and deck-houses made, hull and deck work outside and inside were painted, and sundry repairs carried out.

*Machinery.*—The main engine and deck winches were overhauled, a few piston-rings renewed, and brasses adjusted. General overhauling of dynamo and electric installation done.

*Boiler.*—A few boiler tubes were caulked, and one stay rod repaired.



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## No. 3—

*Summer Repairs.*—Ordinary operating repairs to hull and machinery were carried out.

*Winter.*—Upper deck was repaired and canvas renewed, one new upper tumbler, bottom of chutes renewed, bucket frame overhauled, rivets renewed, hull and deck work outside and inside repainted, repairs to fenders and sundry repairs made.

*Machinery.*—Repairs and overhauling of main engine, breasting, bow, and stern winches, and bucket frame winch were made; one new bush fitted in cylinder of feed pump, and general overhauling of dynamo and electric installation effected.

*Boiler.*—Tubes of starboard boiler were repaired, two new smokestacks made and installed, four O'Neil's patent boiler furnace doors fitted.

## No. 4—

*Summer.*—Ordinary operating repairs were carried out during the season.

*Winter.*—Repairs to fenders, bulwark, and forecastle were made, the bottom of chute was renewed, one new top tumbler supplied, and bucket frame overhauled, with sundry repairs. Dynamo was repaired and wiring overhauled, hull made watertight and all repainted. Four O'Neil's patent boiler furnace doors were fitted.

*Machinery.*—General overhauling of main engine, winches, dynamo, pumps, and caulking of boiler and sundry other repairs were done.

## No. 5—

*Summer.*—General operating repairs were made to hull and machinery during the season.

*Winter.*—Repairs were made to hull above water line, the main deck was partly repaired and caulked, repairs to stern post, to chute and upper deck made, cotton canvas awnings partly renewed, bucket frame overhauled, eight rollers were renewed on bucket frame, lower and upper tumbler bushes renewed, dynamo armature and electric wiring overhauled and repaired, and sundry repairs made.

*Machinery.*—Had repairs made to bearings of main engine, and overhauling of winches, pumps, capstan engine; also repairs to armature of dynamo, hull and deck work outside and inside repainted; cleaning of boiler, caulking of seams in couple of places; one new tumbler bush and one tumbler shaft supplied and fitted, and sundry repairs made.

## No. 6—

*Summer.*—General operating repairs to hull and machinery were made during the season.

*Winter.*—The hull was repaired near stern post, repairs to main and upper decks, bulwarks, etc. Tenders were renewed, ten bucket frame rollers, rivets in bucket frame overhauled, and one plate in chute renewed; hull and deck work outside and inside were repainted, and sundry repairs made.

*Machinery.*—Main engine pumps and auxiliaries were overhauled. Bottom plate of boiler on starboard side was renewed. Port side boiler had several tubes renewed, and steam piping of both boilers was overhauled and repaired. One complete set of New England roller grates was installed on board, and sundry repairs made.

## No. 7—

*Summer.*—General operating repairs to hull and machinery were made during the season.

*Winter.*—Fenders were put in good order, upper deck canvas was renewed. Outside of wheel house was repaired, and floor in forecastle renewed. One bucket frame depth indicator was installed, cotton canvas awning discarded and wood awnings over lever house. Hull and deck work outside and inside was repainted.



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*Machinery.*—Overhauling and repairs to main hoisting winch were made, breasting and bow winches, cutter head engine, and inside sheathing and cover of main centrifugal pump renewed. Alteration of the piping of the forced-draught fans, repairs and electric welding on furnaces of boilers; repairs to smoke boxes, and installation of one new smokestack effected. General overhauling of electric wires and dynamo done, and syphons overhauled and increased in number. The question of new boilers for this vessel will require to be very carefully considered next year.

The pontoon scow No. 24, belonging to this dredge, had a new smokestack supplied, her donkey boiler overhauled, feed pump repaired and winch overhauled.

*No. 8—*

*Summer.*—General operating repairs to hull and machinery were made during the season.

*Winter.*—Wooden fenders on ship side were partially renewed, upper deck repaired and caulked, inside of hull scraped and painted and hull and deck work outside and inside repainted, and sundry repairs.

*Machinery.*—The large gear wheel of windlass was renewed. Turbine shell plates inside, welded by electricity, turbine shaft, leg bush, thrust collars, and turbine suction pipe were all overhauled and repaired. One new butter head shaft was supplied, and new plates fitted to cutter head. Alteration of operating levers of gate valves. Centre furnace of both boilers were repaired and welded, stay bolts and combustion chamber made water-tight, a few tubes packed. Also air, feed, and hydraulic pumps repaired. General overhauling of auxiliaries and of electric wiring and dynamo.

*No. 9—*

*Summer.*—One new dynamo was installed, ten sets of turbine plates, one shaft and one pump wheel were supplied, together with the ordinary repairs.

*Winter.*—This dredge wintered at Davies dock at Lévis, where repairs were made, but the following articles were supplied by the Sorel shipyard: New tail shafts fitted, new bushes, turbine wheels, made with blades cast solid, front and cover of condenser 4-foot diameter renewed, and eccentric shafts of main engine re-babbitted with metal supplied by the shipyard. Two intermediate slide valves and seats were renewed, and one new cast-iron left hand propeller supplied.

*No. 10—*

*Summer.*—The eight yard buckets were brought several times to the shipyard to be repaired with their bucket braces, besides the ordinary operating repairs to hull and machinery.

*Winter.*—During winter the fenders of hull, the boiler tubes, and doors were repaired; one new smokestack was installed; one set of United States metallic packing was renewed, for the first time since the construction of this vessel. Repairs to piston rods and links of main engine were made, new plates with fibre for compression-box of dipper arm; all other auxiliaries, such as capstan, engine, swinging engine, etc., were overhauled and repaired. Hull and deck work outside and inside repainted, and sundry repair work done.

*No. 11—*

*Summer.*—The buckets with their braces were brought to the shipyard several times to be put in good order, besides the usual ordinary operating repairs during the season to hull and machinery.

*Winter.*—Main hoisting, swinging, and capstan winch, main friction and hand brake, bands on hoisting drum, were repaired, all valves and pistons readjusted, upper arm re-riveted, and a ventilator fitted over the galley.



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Two new high-pressure pistons were renewed, condensers had six tubes removed and plugged, main stop valve on boiler repaired. General overhauling of auxiliaries, engine, boiler, and electric wiring and repairs to hull, fenders, etc., one new Verchères boat supplied; and the hull and deck outside and inside repainted.

*No. 12—*

*Summer.*—This dredge had ordinary operating repairs to hull and machinery, and was supplied with two 24-barrel rafts in connection with the dredging work.

*Winter.*—The bottom of the chute was sheathed with cast-steel slabs. The awning over upper deck at stern was replaced by wooden panels, railings and derrick were repaired and one new Verchères boat supplied.

*Machinery.*—Repairs to tumbler shaft and general overhauling of main engine and winches were made; hull and deck work outside and inside repainted, and sundry other repairs carried out.

*No. 13—*

*Summer.*—The doubling plates of the chute were renewed during the season, and twenty bucket teeth, besides the ordinary operating repairs to hull and machinery.

*Winter.*—Ladder frame mud guards were repaired. Top plates of frame under rollers were cut with electric machine; rooms aft were repaired and put in good order; cotton duck awning on upper deck replaced by wooden panels.

*Machinery.—Main engine.*—The three valves of reversing engines were repaired, and tightening of main gear shell; one broken gear was renewed in bow winch, the bucket frame winch had a wheel renewed, and all auxiliary machines were overhauled.

*Boiler.*—Butt straps were caulked, doors repaired, the four cross-bars renewed; derrick on main deck was repaired, hull and deck work outside and inside repainted, and sundry repair work carried out.

*No. 14—*

*Summer.*—One 24-barrel raft was supplied to this dredge in connection with her dredging work.

The bridge deck in front of well was cut to give clearance to the buckets when revolving over the upper tumbler. The telegraph post was shifted for the same reason.

The back plate of the chute was strengthened with stays; electric wires were overhauled, and boilers caulked.

*Winter.*—The three life-boats on main deck were removed and installed, with their davits, etc., on main deck. The bucket frame had holes cut in the plates under the rollers to clear them from jamming these rollers.

One of the chutes was strengthened by doubling plates and channels.

The upper deck, aft, was caulked all over. The lower tumbler-bush was repaired and put in good order.

*Machinery.*—The main throttle-valve and the thrust of bucket-frame winch were repaired. New frictions to bow breasting-winch, both bilge pumps repaired, valve seat and rings renewed, new brasses to lower tumbler were supplied.

One large skylight was made on each side of engine-room casing. Alterations to heating system in bath-room and officers' quarters were made. General overhauling of piping and drains and of other auxiliaries. The hull and deck-work was repainted, and sundry repairs carried out.

Six rollers were renewed on the bucket frame.

*Boiler.*—Rivets were renewed and some caulking done on the boiler, and the hull and deck were repainted, and sundry repairs carried out.



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*No. 15—*

*Summer.*—Had practically the same repairs during the summer as No. 14. Also one 24-barrel raft was supplied. Chute plates were stiffened, and boiler repaired.

*Winter.*—New breasting rollers with flanges; life-boats transferred from main deck to upper deck. Cutting of bridge deck opposite wheel-house, and shifting of telegraph to give clearance to the buckets. One large skylight was installed on each side of engine-room casing.

*Machinery.*—Strengthening of thrust of ladder-frame winch, bearing of upper main shaft repaired; one breasting winch frame repaired, and general overhauling of dynamo engine, and repairs to armature. New brass rings to feed pump pistons; renewal of glands of rods, piston rods of main engine.

Alteration to heating system in bath-room and officers' quarters. General overhauling of piping and drains and of other auxiliaries. The hull and deck work was repainted, and sundry repairs carried out.

## TUGS.

*“ Becancour ”—*

*Summer.*—Had no repairs during the season.

*Winter.*—A fire-pump was installed on board, and steam was kept up during the whole winter as a protection for the fleet and the shipyard in case of fire. Vessel cleaned and painted all over, and sundry repairs carried out. Two O'Neil's patent boiler furnace doors fitted.

*“ Carmelia ”—*

*Summer.*—Had ordinary operating repairs. Was hauled out on 2nd December for winter.

*Winter.*—Repairs to stem, bulwark, rails, tow post, and to hull under the water line, after deck lowered and deck-houses lengthened; new stove supplied.

*Machinery.*—New bushes in stern tube, general overhauling and repairs to main engine, windlass and steering gear; also repairs to sanitary and feed pumps.

Vessel cleaned and painted all over, and sundry repairs carried out.

*“ Chambly ”—*

*Summer.*—Had ordinary repairs.

*Winter.*—Deck-houses partly renewed; coamings, deck and deck-houses repaired; one new refrigerator was installed on board.

*Machinery.*—Repairs to air pump, eccentrics, thrust shaft and reversing engine; also bushes fitted on rocking shaft and brasses of connecting rod renewed.

*Boiler.*—Caulking of a few stay bolts.

Vessel cleaned and painted all over, and sundry repairs carried out.

*“ Contreœur ”—*

*Summer.*—Repairs to fenders, rail, bulwark, and iron sheathing of hull.

*Machinery.*—General overhauling of main engine, feed pump, high and low-pressure pistons and link motion. Also one new ash-ejector pipe was supplied.

*Boiler.*—Caulking of seams, and a few rivets.

Vessel cleaned and painted all over and sundry repairs made.

Installation of a speaking-tube from wheel-house to engine-room, and one new smokestack installed, besides general operating repairs.



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This vessel was hauled on the ways on April 30 to repair the rudder and renew the propeller key and propeller shaft. Was hauled out again on May 13, to place one new propeller, and on July 16, for another new propeller. Was again put on the ways on August 7, to repair her stem.

One 24-barrel raft was made during the summer and supplied to this tug in connection with dredging operations. Two O'Neil's patent boiler furnace doors fitted.

*"Deschaillons"—*

*Summer.*—General operating repairs. Was hauled on the ways October 5, 1914, to renew starboard propeller.

*Winter.*—Was supplied with one new locker in galley, and one in fore-castle.

*Machinery.*—This boat was under steam all winter for protection for the fleet and the shipyard in case of fire.

Few minor repairs only were made on board, such as fitting of brasses, new keys on eccentrics. The fire-hold deck plates were repaired and a few tubes and rivets caulked in boiler. Vessel cleaned and painted all over and sundry repairs made. Two O'Neil's patent boiler furnace doors fitted.

*"Emilia"—*

*Summer.*—Was hauled on the ways on May 16 to repair her propeller key ways. Was put on the ways again on 23rd November, for one new propeller and repairs to hull and caulking.

During the season, this vessel had the ordinary operating repairs.

*Winter.*—The hull was repaired, main deck rails and wheel-house floor were also put in good order.

*Machinery.*—Repairs to high and low-pressure cylinder pistons and lining of shaft. Four new brasses for link motion and two new bushes for steam chest were supplied and fitted. Repairs to injector and steam pump overhauled and partly renewed.

*Boiler.*—Was caulked in the bottom part.

Vessel cleaned and painted all over, and sundry repairs carried out.

Two O'Neil's patent boiler furnace doors fitted.

*"Iberville"—*

This vessel was hauled out on the 24th August, to repair her propeller wheel; and had, during the season, general operating repairs. A coat of paint was given, while on the ways, to the hull under the water line.

*Winter.*—Fenders, bulwarks, rails, awnings, and W.C. were repaired. the steering arrangement was overhauled.

*Machinery.*—Air-pump pistons repaired; one new check valve for injector feed-pipe, and overhauling of engine steering gear and windlass.

Vessel cleaned and painted all over and sundry repairs carried out. Two O'Neil's patent boiler furnace doors fitted.

*"Jessie Hume"—*

*Summer.*—Repairs to boiler, seams were caulked in furnace; half dozen tubes had to be renewed, besides the ordinary operating repairs during the season.

*Winter.*—Repairs to the stem and deck-houses.

*Machinery.*—New brasses, crank pins, cross-head, and eccentrics were made and renewed where required.

The boiler had a good overhauling, and a new set of grate bars supplied. Vessel painted and cleaned all over, and sundry repairs made.



*“Lac St. Pierre”*—

*Summer.*—Stay bolt in boiler renewed. Was hauled out on September 12 to repair her propeller shaft and bush; had also ordinary repairs.

*Winter.*—The hull had to be repaired above the water line, and also the deck of forecastle and crew quarters. A good caulking of the shell was also applied all over.

*Machinery.*—The main engine had the cross-heads and eccentrics repaired. The steering gear and windlass were also overhauled and repaired. The boiler was caulked in the bottom part. The smoke box and doors also repaired; one new smokestack casing installed.

Vessel cleaned and painted all over and sundry repairs made. Two O’Neil’s patent boiler furnace doors fitted.

*“Lanoraie”*—

*Summer.*—Was hauled on the ways on the 30th November to repair her rudder stock. Also had ordinary repairs during the season.

*Winter.*—Deck, rails, stem, and fenders were repaired and put in good order.

*Machinery.*—Repairs were made to link motion, high-pressure cylinder, thrust shaft of main engine; the pumps, steering gear, and windlass were overhauled, and the vessel cleaned and painted all over, and sundry repairs made.

*“Laviolette”*—

*Summer.*—This vessel was hauled out on the 8th May to renew one propeller, and on the 18th August to renew the other propeller. Also had ordinary operating repairs.

*Winter.*—The deck and fenders were put in good order.

*Machinery.*—Main engine: New keys fitted, new ring to high-pressure piston and repairs to low-pressure cylinder valve. The steering gear had new pins for cross-heads; the guides were rebabbitted.

The boiler had two stays renewed and the steam pipes of the water column were also renewed, and the vessel cleaned and painted all over, and sundry repairs made.

*“Lotbinière”*—

*Summer.*—Had only operating repairs during the season. Was hauled out on the ways on 27th April to repair the propeller shaft and rudder.

*Winter.*—The hull and decks were repaired and caulked, upper deck re-canvassed.

*Machinery.*—Bearings of main engine and eccentric pins were renewed. Pumps were overhauled, and furnace of boiler repaired and caulked. Two new pins on cross-heads of steering gear. Drain pipes of main engine renewed.

Vessel cleaned and painted all over and sundry repairs made. Two O’Neil’s patent boiler furnace doors fitted.

*“Lavaltrie”*—

*Summer.*—Was hauled out on June 5 for one new propeller wheel, and on the 5th December to fit key to propeller shaft. Also had ordinary operating repairs.

*Winter.*—Had very little repairs to hull. Few deck-house planks renewed and caulked.

*Machinery.*—New piston rings to high-pressure piston, and repairs to circulating pump, and overhauling of winches.

Vessel cleaned and painted throughout and sundry repairs made.

*“Portneuf”*—

*Summer.*—Was hauled out on 23rd August, for a new propeller, and had the ordinary operating repairs during the season.



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*Winter*.—Repairs to deck rails, cotton duck on upper deck, and coamings of deck-houses.

*Machinery*.—Main engine: Two brasses were renewed, new piston rings on high and low-pressure pistons. The steering gear had new leading sheaves.

*Boiler*.—Seams in furnace were caulked.

Vessel cleaned and painted all over, and sundry repairs done. Two O'Neil's patent boiler furnace doors fitted.

“*Varennés*”—

*Summer*.—Was hauled out on May 16 to renew a propeller wheel. Had general operating repairs during the season.

*Winter*.—Fenders were repaired. One ash-ejector was installed. Had repairs to deck and deck-houses, and stem of vessel in its upper part.

*Machinery*.—Rings of high-pressure valves of main engine were renewed, brasses and bushings were also repaired or renewed. The windlass, steering gear, and pumps were overhauled, also the heating system and boiler.

Vessel cleaned and painted throughout, and sundry repairs executed.

Two O'Neil's patent boiler furnace doors fitted.

“*De Lévis*”—

*Summer*.—Had practically no repairs, but was supplied with chain slings and surveying poles.

*Winter*.—Caulking of main deck all over. Repairs to cotton duck on upper deck. Vessel and machinery cleaned and painted all over, and sundry repairs made.

*Machinery*.—General overhauling of main engine. Repairs to piston valve rings, stop valves of steering gear, and overhauling of windlass.

*Boiler*.—Caulking of seams in lower part of boiler; one new set of grate bars supplied.

“*James Howden*”—

*Summer*.—Was hauled out on 30th April to repair propeller shaft and bush. Hauled out again on December 3, for winter, to repair the hull, and a few planks in the bottom were removed to clean the bilges. A couple of cross-beams were added inside of hull between engine and boiler. Mess and galley floors were repaired and caulked. Upper deck was shored up and put in good order, and cotton duck partly renewed.

*Machinery*.—Main engine low-pressure valve repaired, and bushes renewed. Steering gear had two brass pipes fitted; two cross-heads also repaired, and new rings in pistons. The pumps were overhauled. The boiler was examined and put in good order; a new smokestack casing was supplied and installed on board, and the vessel cleaned and painted all over, and sundry repairs executed.

COAL BARGES.

*No. 1*—

Was hauled out for the winter on December 3. Had no repairs during summer.

*Winter*.—Had one new funnel, smokestack, and rudder repaired. Overhauling of winch and boiler. The hauling out for winter was for repairs to stem and steel sheathing of hull.

*No. 2*—

Ordinary operating repairs during the season.

*Winter*.—Renewal of boiler tubes and caulking of seams; also repairs to side fenders, decks, and outside planking.



*No. 3—*

Hauled out for caulking and repairs to hull.

*Summer.*—Operating repairs.

*Winter.*—Fenders and deck were repaired, and winch and boiler overhauled.

*No. 4—*

*Summer.*—Operating repairs.

*Winter.*—Had a new funnel installed, repairs to deck, and fenders and the winch overhauled.

*No. 5—*

*Summer.*—No repairs during the season.

*Winter.*—A new wheel-house was built on upper deck, and fenders repaired. Overhauling of main hoisting winch, windlass, and steering gear. Vessel scaled inside and cleaned and painted, and sundry repairs done.

## FLOATING SHOP.

Six crews' beds installed and usual sundry repairs to hull and machinery, and vessel repainted throughout.

## SOUNDING SCOWS.

*Nos. 1, 2, and 3—*

Hauled out as required to repair the hulls during the season.

## DUMPING SCOWS.

The twenty-eight dumping scows during the season were kept in good working order, and repairs to hull and hydraulic cylinders had to be made pretty often.

The following scows were hauled out as required during the season for repairs to hull and hopper doors:—

Scow No. 1, July 31.	Scow No. 18, September 14.
“ 4, November 5.	“ 19, August 6 and October 24.
“ 5, September 5.	“ 20, September 18.
“ 6, May 12.	“ 22, October 17.
“ 7, June 16.	“ 23, October 22.
“ 8, October 12.	“ 25, June 30.
“ 9, June 19.	“ 26, October 20.
“ 16, September 26.	“ 27, December 1.
“ 17, June 19.	

*Winter repairs.*—The hulls and machinery were overhauled and repaired during winter.

## ROCK CUTTERS.

*No. 1—*

*Summer.*—Had operating repairs.

*Winter.*—Had four rollers for breasting winch; friction bands repaired; main winch drum renewed. General overhauling of sanitary pump. Repairs to stem and exhaust pipes, and general overhauling of hoisting system.

## STONE LIFTERS.

*Nos. 3, 4, and 5—*

Had small usual repairs during the season.



## SESSIONAL PAPER No. 21

## DERRICK SCOW.

*No. 1—*

A new 10-ton steel derrick was installed on the flat scow built last year for this purpose for use on the Richelieu river for shipyard and fleet work. The old boiler and winch were put in order and reinstalled.

## WINCH SCOW AND PILE DRIVER.

Were hauled on the ways twice during the season to repair the hulls under the water line.

## REPAIRS TO VESSELS OF THE DEPARTMENT OF PUBLIC WORKS.

*Tug "Montmorency"—*

Was hauled out on 16th September to receive a new propeller.

*Tug "Ottawa"—*

Hauled out on 4th August for repairs.

## REPAIRS TO VESSELS OF CONSTRUCTION OF LIGHT DEPARTMENT.

All kinds of repairs and equipment were made and supplied for the construction plants of this department, such as cleats, bolts, chisels, fairleads, deck plugs, brass plugs, buoy forgings, steel rings, surveyor rods. Also repairs to electric wiring of their shops at Sorel wharf, preparation of timber for their works, etc.

On the 27th August, barge *Sarah* was hauled out for caulking her hull and repairs to steel sheathing.

One new smokestack supplied to scow *Quebec*.

## LIGHTSHIPS.

*Nos. 1, 2 and 3—*

*Summer.*—These vessels were thoroughly overhauled and repaired; plates on steel deck were renewed. The bulwark rail angles removed, straightened up, and refitted. The gas tanks inside of hull were removed to have bottom of vessels cleaned and painted. The woodwork was also repaired and put in good order.

These three vessels were hauled out to have their hulls scraped and painted under the water line.

*Barge "Acetylene"—*

Had ordinary operating repairs during the season.

*Tug "Hosanna"—*

*Summer.*—This vessel came to the shipyard several times during the season to have her engines repaired. Was hauled out on 9th May for repairs to rudder; hauled again on 28th May, to repair propeller key-ways, and tightening of nut, and again on September 10, she was put on the ways for repairs to stern, which was leaking badly.

A few planks of outside sheathing were renewed, and the hull was caulked.

*Winter.*—Had no repairs during winter, instructions from the department being given that the boat was not to be put in commission the next season. The vessel was pumped regularly so as to keep her afloat.

*"Shamrock"—*

*Summer.*—This vessel came very often to the shipyard during the season for light repairs to engine, winches, steering gear, hull, and deck-houses.



6 GEORGE V, A. 1916

*Winter.*—The stern part of bulwark was renewed. One hawse pipe was also renewed. One extra room was built in the officers' quarters, and deck-houses were repaired.

*Machinery.*—The main engines and winches had a thorough overhauling. The boom in the mast was repaired and lengthened 5 feet. The boiler had to be raised for repairs; and the vessel cleaned and painted throughout.

*Str. "Verchères"*—

*Summer.*—Was hauled on the ways on September 14 to repair her rudder, and on 14th to renew one propeller. Also had general operating repairs during the season.

*Winter.*—Repairs were made to stem, fenders, bulwark, and deck-houses.

*Machinery.*—The engines and auxiliaries were overhauled; the boiler was taken ashore to the boiler shop. The tubes were renewed. The shell was cut for a length of 4 inches, and the back head re-riveted. A new smokestack was made. The top of the deck-houses had to be removed to take out this boiler, which necessitated important work for the joiners to rebuild this part of the deck-houses. Vessel cleaned and painted throughout.

#### BUOY SERVICE.

This department was supplied with fittings and material, such as concrete, anchors, etc.

#### REPAIRS TO DOMINION STEAMERS.

*C.G.S. "Dollard"*—

*Summer.*—Had repairs to her main hoisting winch, and was supplied with chain slings, some fenders, a rack for manila rope, deck fire buckets, one reel for 1½-inch hose, one steam syphon, and a good many steel rings and shackles.

A new system of oil fuel (system "Crosby") was installed on board, work partly done by shipyard.

*Winter repairs.*—Painting of all cabins and forecastle, repairs to steering chains and sheaves. Galley stove renewed, and repairs to engine-room telegraph; also extensive alteration to derricks.

*Machinery.*—One drum added to the main hoisting winch, with friction and clutches. Repairs to steering gears, and general overhauling of all auxiliaries.

*C.G.S. "Bellechasse"*—

During summer, refrigerators were made and installed on the deck of the vessel, which had also other light repairs to her equipment, painting, etc.

*C.G.S. "Frontenac"*—

*Summer.*—Light repairs during the season.

*Winter.*—The stem was repaired. The main deck caulked, cotton duck of upper deck partly renewed. Signal bell wiring was overhauled and renewed. Two cupboards were made in the galley. Two life-boats were repaired, and the refrigerator was put in good order.

*Machinery.*—The main engine had its link motion eccentric brasses repaired, and the windlass and pumps overhauled. The ash-ejector discharge pipe was renewed. The boiler received one new set of grate bars. Vessel cleaned and painted throughout, and sundry repairs executed.

*C.G.S. "Lady Grey"*—

*Summer.*—Had a good and thorough overhauling, painting, and repairs of the hull and machinery and electric wiring.

Most of the work on this vessel is done during the summer because in winter she is employed as ice-breaker.



## SESSIONAL PAPER No. 21

## MAINTENANCE AND IMPROVEMENTS TO BUILDINGS AND PLANT OF THE SHIPYARD.

*Building No. 1 (Proposed new offices).*—Left in abeyance.

*No. 2 (Boiler shop).*—The roof and outside of building repainted. Two new funnels were installed over the bending slab furnaces. Installation of one combined bending and punching machine. Whitewashing of inside of building; ordinary repairs to machinery, which was kept in first-class running order.

*No. 3 (Pipe shop and old boiler shop).*—Had light repairs to woodwork and roof.

*No. 4 (General offices, stores and iron racks).*—Repairs to roof and foundations of building. One pipe was installed to drain the cellar. A good many racks and shelves were made in store, and the roof and inside of building was painted.

*No. 5 (Machine shop).*—The electric department was removed from second story of this building. Building was whitewashed inside, foreman's office painted, floors and foundations were repaired. Outside of building was painted. An inclined plane was installed from the coal pile to the fire-hold to save handling of coal.

*No. 6 (Blacksmith shop).*—Had repairs to Fairbanks power hammer and dynamo and overhauling of steam hammer. Building whitewashed inside.

*No. 7 (Waste shed).*—The doors were repaired; installation of a compartment with solid foundations for storing heavy goods, such as rivets in kegs, bolts, boiler tubes, etc.

*No. 8 (Stables).*—Only absolutely necessary repairs were made on this building, as it is intended to be replaced by a new one.

*No. 9 (Carpentry shed).*—One coat of paint was applied to outside of this building.

*No. 10 (Ice-house).*—Was painted outside.

*Nos. 11, 12, 13, 14, 15 (Store sheds).*—Were only painted.

*No. 16 (Power-house).*—This steel frame and brick building was lengthened 80 feet to include electric fire pumps, large compressors, and other machinery which were installed outside of old building under temporary covers.

*No. 17—(Saw-mill).*—Removal of machines from cabinet department to larger quarters, and space formerly occupied by the cabinet department arranged for a store for dry lumber and expensive timber. The outside of building was painted all over.

A new galvanized iron refuse pipe was installed to carry sawdust to fire-hold. This pipe is to replace the old wooden one built ten years ago.

*No. 18 (Paint shop, electric shop, and moulding loft).*—Light repairs to this building. One coat of paint was given to the outside.

*No. 19 (Shed for patterns).*—Light repairs to roof. Did not need painting.

*No. 20 (Dry lumber shed).*—The exterior of this building was painted.

*No. 21 (Fire-hold No. 2).*—Had one new smokestack installed. The building was whitewashed inside and outside.

*Buildings Nos. 22 and 23 (Sheds for castings).*—Had no repairs.

*No. 24 (Shed for machinery).*—Was painted outside.

*No. 25.*—Was demolished.



No. 26 (*Main gate house*).—A heating system was installed and connected to the boiler-shop system with adjacent building.

No. 28 (*Oil shed*).—Installation of electric light, and of a sewer system to drain the cellar.

No. 29 (*New cabinet shop*).—Construction of a new cabinet shop, all old machinery was installed, also motors and electric light, etc.

Building No. 30 (*Fleet stores*).—This is a new building which was erected to store equipment of the fleet during winter. The interior was divided into compartments to provide accommodation for equipment of different new vessels built during the last three years.

NEW CONSTRUCTIONS.

Nos. 45 and 46.—Named respectively, *Bécancour* and *Deschaillons*, are two steel twin-screw tugs and fire-boats combined, of the following dimensions:—

Length B.P...	93' 0"
“ O.A...	100' 0"
Breadth moulded...	22' 6"
Depth...	10' 0"
Draught, mean...	7' 0"
I.H.P...	450

The machinery consists of twin-screw compound jet condensing engines, having cylinders 12 inches and 24 inches diameter by 18-inch stroke, supplied with steam from a Scotch boiler 13 feet 6 inches diameter by 10 feet 6 inches long, with a working pressure of 130 pounds per square inch. The engines in the *Bécancour* were built by the Pontbriand Company, Limited, of Sorel; those for the *Deschaillons* being built in the shipyard.

The boilers were purchased in Lévis. The *Bécancour* was launched on June 8, 1914, ran a satisfactory trial trip on July 9, and commenced work on July 13.

The *Deschaillons* was launched on June 25, 1914, tried on August 17, and commenced work on August 20.

The *Bécancour* has been fitted with a Waterous fire engine pump of 1,200 gallons per minute capacity. A Merryweather fire pump of the same capacity is on order and will be installed in time for next winter's use on board the *Deschaillons*.

This past winter, these two fire-boats were placed in such a position that the whole of the fleet and a considerable portion of the shipyard could be reached by their hose, and steam was kept up all the winter.

The *Deschaillons* used her general-service pump as a temporary arrangement. The men forming the shipyard fire brigade were exercised frequently during the winter, and everything was kept ready for instant use. A fire did occur on board the dredge *Tarte*, which could easily have been a very serious matter only for the fire-boat appliance, which subdued the fire in a very short time.

Nos. 47 to 50.—Constructions Nos. 47 to 50 are four steel dumping scows of the following dimensions:—

Length...	140' 0"
Breadth moulded...	30' 0"
Depth...	11' 9"
Capacity...	450 cub. yds.



## SESSIONAL PAPER No. 21

These scows are each fitted with two sets of hydraulic machines for working the doors, the whole being under deck; each set has two cylinders 12 inches diameter which are worked from the accompanying tug pumps.

They were launched in May, 1914, and worked very successfully with the new dredges *Nos. 14 and 15*.

*No. 54.*—This construction is a twin-screw wood-sheathed fisheries patrol steamer for lake Winnipeg, of the following dimensions:—

Length B.P...	151' 0"
"    O.A...	160' 6"
Breadth moulded...	26' 6"
Depth...	13' 6"
Draught...	7' 6"
I.H.P...	900

Work was continued on this vessel and the steel work of the hull was completed in June, 1914. The vessel was dismantled and shipped by train to Selkirk, Man., where it is being completed, and will be launched in May, 1915.

The boilers, two in number, of the Scotch marine type, were constructed in the shipyard and shipped to Selkirk with funnel, etc., in September, 1914. The dimensions of the boilers are 11 feet 0 inches diameter by 11 feet 6 inches long, and having a working pressure of 150 pounds per square inch. They are fitted with Howden's forced draught.

The engines are twin-screw triple expansion jet condensing, having cylinders 11 inches, 18 inches, and 30 inches diameter by 20-inch stroke, and have been built by Polson Iron Works, of Toronto.

The vessel is fitted with a gasoline launch and a life-boat built in the shipyard, also a life-raft. It is expected that this vessel will be completed by July, 1915. The vessel has been named the *Bradbury*.

*No. 57.*—This construction is a steel twin-screw testing steamer for the St. Lawrence ship channel.

Length B.P...	140' 0"
"    O.A...	147' 0"
Breadth moulded...	35' 0"
Depth moulded...	15' 0"
Draught loaded...	10' 0"

The vessel is being fitted with twin-screw compound surface-condensing engines made by the New Burrell Johnson Co., of Yarmouth, N.S., having cylinders 14 inches by 28 inches by 21-inch stroke.

The boiler, which is Scotch marine, has been built in the shipyard, and is 11 feet 0 inches by 15 feet 0 inches diameter, with a working pressure of 130 pounds per square inch.

The vessel will be equipped with a testing bar 40 feet long, and fitted with a specially designed winch, made at the shipyard, for handling the gear, and is arranged for testing to a depth of 55 feet.

The steel work was all completed early in the winter, and the vessel will be ready for launching in May, 1915, and should be in commission by the end of July. The vessel will be fitted with a gasoline launch, life-boat, and dinghy, and a life-hoisting winch will be supplied for quick handling of the boats. Good living accommodation has been provided for the staff, officers, and crew.

This vessel has been named *Detector*.



No. 59.—Construction No. 59 is a steel twin-screw tug for service below Quebec, of the following dimensions:—

Length B.P...	120' 0"
“ O.A...	130' 0"
Breadth moulded...	24' 0"
Depth...	12' 0"
Draught, about...	8' 0"

The vessel has been arranged with good accommodation for the staff engineers; also for the officers and crew.

The machinery consists of twin-screw compound surface-condensing engines having cylinders 14 inches and 28 inches diameter by 21-inch stroke, built by the New Burrell Johnson Co., of Yarmouth, N.S. Steam will be supplied from a Scotch marine boiler 15 feet 0 inches diameter by 11 feet 0 inches long, 130 pounds per square inch working pressure. The boiler has been built in the shipyard.

Owing to the war, there was considerable delay in delivering the material; in consequence, the keel was not laid during the fiscal year, but is so at the time of writing this report. Part of the steel was supplied by the Nova Scotia Steel and Coal Company. It is hoped to launch this vessel, which has been named *Berthier*, by the end of the present summer.

No. 60.—This construction is a single-screw steamer for buoy service on the Ottawa river, and will be composite, built of the following dimensions:—

Length O.A...	100' 0"
Breadth moulded...	21' 0"
Depth...	9' 0"

The machinery consists of one set compound jet condensing engines supplied by Polson Iron Works, Toronto, having cylinders 10 inches and 20 inches diameter by 14-inch stroke, supplied with steam from a Scotch marine boiler 9 feet 6 inches per square inch, which will be built in the shipyard. This vessel will be commenced during the summer of 1915.

Nos. 61 and 62.—Constructions Nos. 61 and 62 are two single-screw hopper barges. (This work is in abeyance.)

No. 63.—This is a steel single-screw propelled coal barge of the following dimensions:—

Length L.W.L...	165' 0"
“ O.A...	172' 0"
Breadth moulded...	43' 0"
Depth...	13' 0"
Draught loaded...	10' 6"
Capacity...	700 tons

The vessel has been designed with five watertight bulkheads and double bottom for water ballast in the engine room and trimming tank forward.

There are two holds and two exceptionally large hatches, a revolving steam crane with a clam to lift 1½ ton will be fitted between the hatches for the quick coaling of the dredges; the crane will also be so arranged that the vessel can be used to assist the buoy service in the spring if necessary.

The steel construction work is well advanced, and the vessel will be launched during the summer.

The machinery consists of one set of compound surface-cendensing engines built by the Pontbriand Co., Sorel, having cylinders 20 inches and 42 inches diameter by 24-inch stroke, supplied with steam from a Scotch marine boiler 15 feet 0 inches diameter by 11 feet 0 inches long being built in the shipyard.



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*Nos. 64 to 67.*—These constructions are four steel dumping scows of the following dimensions:—

Length.. . . . .	100' 0"
Breadth moulded.. . . . .	29' 3"
Depth.. . . . .	10' 3"
Capacity.. . . . .	250 cub. yds.

They are fitted with hydraulic machinery similar to the other steel scows. The steel work is well advanced and all four will be launched during the summer.

The work on new constructions has been kept back during the last fiscal year through delays in obtaining steel material, partly owing to the war.

The steel for *Nos. 63 and 64 to 67* was ordered in July, 1914, from Europe, and was cancelled when war broke out; finally, as much as possible was placed with the Nova Scotia Steel and Coal Company, the balance coming from the United States. The order for steel material for *No. 59* was also placed with this firm. This is the first steel shipbuilding material we have obtained in Canada, and it compares very favourably with that received from the States and from Europe.

A plan has been prepared and is incorporated in this report, showing the shipyard with all buildings, etc.; also location of the Dominion Government vessels which wintered in Sorel during the winter 1914-15.

## GENERAL.

*Shipyard Pile Driver.*—Was hauled out on the 4th May, to make repairs to hull.

A new beam, bending and punching machine was installed for the shipbuilding department, and a wooden shelter built over it.

An inclined plane was built for fire-hold No. 1 for coaling purposes, to save handling coal.

The shipyard launches *Margot*, *Buffalo*, and *Bronk* were maintained in good order, and painted. The *Margot* has been employed by the Light Department all season.

All fences were repaired where required, and whitewashed during the season.

The shipyard ways and wharves were repaired and kept in good condition.

The force employed during the fiscal year varied from 676, in September, to 1,059 in March, and averaged 852 daily.

The financial statement shows the total amount expended at the shipyard and ship channel to have been \$1,579,115.48.

I have the honour to be, sir,

Yours faithfully,

W. S. JACKSON,

*Superintendent of Shipyard.*



SOREL SHIPYARD—STATEMENT OF EXPENDITURE,

STATEMENT OF REVENUE AND EXPENDITURE FOR THE FISCAL YEAR 1914-15.

Year.	Amount.	Year.	Amount.
1915.		1915.	
March 31...		March 31...	
To Appropriation for river St. Lawrence Ship Channel actually expended... \$	999,762.43	By Operating dredging fleet..... \$	1,036,846 65
Appropriation for improvements to Sorel shipyard actually expended...	49,262 34	Improvements to Sorel shipyard ..	50,135 71
Appropriation for water levels investigation re river St. Lawrence actually expended...	16,492 21	Construction for dredging fleet.....	1,104 32
		Water levels investigation re river St. Lawrence.....	17,101 25
Appropriation for improvements to dredging plant:—			1,105,187 93
Construction No. 45/46 2 twin screw steel tugs.....	59,315 61	Improvements to dredging plant:—	
" No. 47/50, 4/450 cu. yd. steel dumping scows.....	13,986 80	Construction No. 45/46, 2 twin screw steel tugs.....	59,315 61
" No. 59, twin screw steel tug..	9,573 06	" No. 47/50, 4/450 cu. yd. steel dumping scows.....	13,986 80
" No. 63, self propelling coal barge.....	22,296 14	" No. 59, twin screw steel tug	9,573 06
" No. 64/67, 4/250 cu. yd. steel dumping scows.....	73,724 96	" No. 63, self propelling coal barge.....	22,296 14
		" 64/67, 4/250 cu. yd. steel dumping scows.....	73,724 96
Fisheries patrol steamer "Bradbury" for lake Winnipeg.....	178,896 57	Fisheries patrol steamer "Bradbury" for Lake Winnipeg.....	178,896 57
Steamer for testing and sweeping river St. Lawrence Ship Channel .....	160,588 84	Steamer for testing and sweeping river St. Lawrence Ship Channel .....	160,706 69
Construction No. 60, single screw buoy steamer for service on Ottawa river.....	62,576 55	Construction No. 60, single screw buoy steamer for service on Ottawa river.....	62,576 55
Construction No. 61, Cruiser for Halifax.....	96 42	Construction No. 61, Cruiser for Halifax.....	96 42
Re construction of Hopper Barge No. 2 at Collingwood, Ont.....	137 95	Re construction of Hopper Barge No. 2 at Collingwood, Ont.....	137 95
" " of two elevator dredges at Collingwood, Ont.....	14,580 26	" " of two elevator dredges at Collingwood, Ont.....	14,580 26
" " of new ice breaker, Canadian Vickers, Montreal.....	4,318 04	" " of new ice breaker, Canadian Vickers, Montreal.....	3,564 70
" " of dredge No. 16, Canadian Vickers, Montreal.....	1,086 39	" " of Dredge No. 16, Canadian Vickers, Montreal.....	1,086 39
Construction of Lights P.Q.....	16 35	Construction of Lights P.Q.....	16 35
Maintenance of Lights P.Q.....	9,987 70	Maintenance of Lights P.Q.....	9,991 23
C. G. S. "Acetylene".....	2,884 27	C. G. S. "Acetylene".....	2,887 27
" " "Bellechasse".....		" " "Bellechasse".....	432 42
" " "Dollard".....		" " "Dollard".....	7,343 43
			8,558 49



SESSIONAL PAPER No. 21

C. G. S. "Acetylene"	432 42	" " "Lady Grey"	6,564 38
" " "Bellechasse"	7,343 43	" " "Maggie May"	55 87
" " "Dollard"	8,558 49	" " "Montcalm"	9 80
" " "Lady Grey"	6,564 38	" " "Shamrock"	7,639 95
" " "Maggie May"	55 87	" " "Vercheres"	5,772 80
" " "Montcalm"	9 80	Department of Public Works, repairs and supplies	720 44
" " "Shamrock"	7,639 95	to dredges, tugs, etc	947 20
" " "Vercheres"	5,772 80	Prescott Agency	71 25
Department of Public Works	1,224 88	Parry Sound Agency	322 06
Prescott Agency	947 20	Signal Service	171 05
Parry Sound Agency	71 25	The Sincennes, McNaughton Lines, Ltd.	108 58
Signal Service	322 06	Messrs. Leclaire & Fils	220 37
The Sincennes, McNaughton Lines, Ltd.	171 05	Messrs. Geo. T. Davie & Sons	21 79
Messrs. Leclaire & Fils	108 58	Launch "Oriflamme II"	30 85
Messrs. Geo. T. Davie & Sons	220 37	The Canadian Salvage Association	387 44
Launch "Oriflamme II"	21 79	The Montreal Harbour Commissioners	
The Canadian Salvage Association	30 85		
The Montreal Harbour Commissioners	387 44		
Stores and materials	38,537 55		
	\$ 1,579,115 48		1,579,115 48

SOREL SHIPYARD, March 31, 1915.

LOUIS LACOUTURE, Accountant.

W. S. JACKSON,

Superintendent of Shipyards.



SOREL SHIPYARD—STATEMENT OF EXPENDITURE—Concluded.

STATEMENT OF EXPENDITURE ON ACCOUNT OF RIVER ST. LAWRENCE SHIP CHANNEL FOR THE FISCAL YEAR ENDING MARCH 31, 1915.

	Fuel.	Wages.	Board.	Supplies.	Main-tenance and Repairs.	Proportion of General Expenditure	Total for each Vessel.	Grand Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<i>Operating Expenses of Dredging Fleet — River St. Lawrence Ship Channel</i>								
Dredge No. 1.	6,821 08	9,162 73	2,918 33	5,949 74	14,024 15	3,169 09	42,045 12	
Tug Varennes.	4,652 03	5,115 96	1,940 15	1,029 65	2,829 93	1,269 04	16,836 76	
Dredge No 2.	7,708 87	9,104 88	2,911 02	2,206 63	12,470 19	2,804 36	37,205 95	
Tug Chamblay	2,529 94	4,675 22	1,568 04	709 98	4,854 71	1,168 79	15,506 68	
Dredge No. 3.	6,682 12	9,359 50	2,840 62	3,659 52	14,442 22	3,014 86	39,998 84	
Tug Enolia	2,785 81	4,105 79	1,462 10	699 52	2,566 10	947 18	12,566 50	
Dredge No. 4.	6,255 12	9,401 29	2,860 42	3,874 56	12,161 76	2,816 70	37,369 85	
Tug Iberville.	3,235 86	4,904 38	1,750 14	1,050 19	3,387 98	1,168 03	15,496 58	
Dredge No. 5.	9,857 62	9,860 27	3,116 45	3,862 06	12,465 87	3,192 43	42,354 70	
Tug Lac St. Pierre.	4,983 31	4,996 35	1,873 07	1,527 95	5,134 20	1,509 29	20,024 17	
Dredge No. 6	6,699 36	9,263 97	2,844 71	5,448 69	12,500 78	2,996 40	39,753 91	
Tug Lanoraie	2,285 31	4,120 40	1,468 80	700 29	1,980 84	860 47	11,416 11	
Dredge No. 7.	33,366 63	17,751 88	5,176 39	12,225 52	29,670 53	8,004 32	106,195 27	
Tug Lotbinière.	3,587 27	5,060 35	1,854 88	1,133 07	3,629 44	1,244 37	16,509 38	
" Carmelia	2,445 26	2,590 69	850 50	525 32	6,744 00	1,072 43	14,228 20	
Dredge No. 8.	19,046 35	16,767 64	5,055 64	4,008 90	24,172 31	5,628 88	74,679 72	
Tug Hopper Barge No. 1.	3,330 45	5,299 50	1,559 90	1,529 55	2,725 29	1,177 50	15,622 19	
Dredge No. 9.	18,800 60	14,935 78	4,142 09	2,221 30	15,131 91	4,502 37	59,734 05	
Tug James Horden	3,246 21	5,385 90	2,005 46	1,650 98	6,403 37	1,523 56	20,213 48	
Dredge No. 10.	7,265 82	9,849 91	2,713 09	3,397 27	16,054 80	3,202 10	42,482 99	
Tug Contrecoeur	3,482 92	4,884 24	1,746 83	1,351 37	2,869 74	1,168 57	15,503 67	
Dredge No. 11	6,882 32	9,971 20	2,849 08	3,340 54	11,700 89	2,832 26	37,576 29	
Tug Portneuf.	2,831 91	4,382 00	1,608 20	1,006 20	3,048 41	1,054 57	13,991 29	
Dredge No. 12.	11,139 36	9,905 68	3,217 99	6,840 46	9,272 93	3,291 40	43,667 82	
Tug Lavolette.	4,067 05	4,971 26	1,845 25	1,319 23	2,458 01	1,195 12	15,855 92	
Dredge No. 13.	11,484 61	10,010 90	3,314 44	7,437 29	10,301 25	3,468 46	46,016 95	
Tug Lavaltrie.	5,144 55	4,891 49	1,818 47	1,196 81	1,671 91	1,200 21	15,923 44	
Dredge No. 15.	7,308 56	7,666 20	1,983 70	2,309 04	10,903 15	2,459 45	32,630 10	
Tug Beaucœur.	3,444 52	3,271 04	1,180 44	730 64	4,257 10	1,050 26	13,934 00	
Dredge No. 15	7,128 06	7,494 84	1,935 10	2,513 13	16,615 46	2,419 98	32,106 57	
Tug Deschailions.	3,477 76	2,848 26	966 17	1,019 38	3,417 49	956 12	12,685 18	
<i>Fleet Generally.</i>								
Steamer Frontenac.	3,764 50	6,136 65	2,465 66	1,805 55	5,161 45	1,576 05	20,909 86	
" De Lewis.	4,713 75	6,099 43	2,391 80	1,411 49	3,547 08	1,480 65	19,644 20	



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Tug <i>Jessie Hume</i> .....	3,181 13	2,800 42	902 14	676 00	1,629 93	749 11	9,938 73	
Stone Lifter No. 3.....	200 25	1,489 71	436 70	255 03	1,608 95	325 30	4,315 94	
" " 4.....	442 25	1,920 63	429 82	306 09	968 73	331 57	4,399 09	
Rock Cutter No. 1.....	2,507 25	4,439 07	1,561 61	1,755 86	2,354 85	1,028 64	13,647 28	
Floating machine shop .....		997 09	495 38	180 70	1,895 77	290 93	3,859 87	
	236,785 77	255,890 50	82,060 58	92,925 50	291,033 48	78,150 82	1,036,846 65	1,036,846 65
<i>Improvement to Sorel Shipyards.</i>								
Sheer legs, completion.....							405 72	
Building No. 16, power house extension .....							12,046 45	
" 28, completion of oil shed.....							100 22	
" 29, new joiner shop.....							1,354 88	
" 30, new fleet stores.....							8,790 85	
Wharf No. 4, extension.....							22,936 58	
Derrick scow No. 1, reconstruction.....							803 49	
Steam boxes, completion .....							422 56	
Wharf No. 4, raising level of ground.....							3,044 06	
Shipyards general.....							230 90	
								50,135 71
<i>Construction for Dredging Fleet</i>								
Construction No. 58, flat wooden scow, completion.....								1,104 32
Water levels investigation re river St. Lawrence.....								17,101 25
Total expenditure on account of river St. Lawrence ship Channel.....								1,105,187 93

LOUIS LACOUTURE,  
*Accountant.*

W. S. JACKSON,  
*Superintendent of Shipyards.*



APPENDIX No. 5.

STATEMENT of Expenditure and Revenue, Marine Department, 1914-15.

Service.	Grant.	Expenditure.	Grant not used.
	\$ cts.	\$ cts.	\$ cts.
Ocean and river service—			
Dominion steamers and icebreakers .....	1,000,000 00	995,545 95	4,454 05
Examination of masters and mates. ....	16,500 00	12,723 17	3,776 83
Allowance to Mrs. C. Edmond.....	2,000 00	2,000 00	
Investigation into wrecks .....	28,400 00	26,436 85	1,963 15
Schools of navigation .....	8,000 00	4,216 95	3,783 05
Registration of shipping.....	3,000 00	1,514 30	1,485 70
Removal of obstructions.....	20,000 00	8,513 14	11,486 86
Winter mail service.....	11,000 00	10,996 31	3 69
Cattle inspection.....	5,000 00	2,429 76	2,570 24
Wrecking plants .....	45,000 00	45,000 00	
Unforeseen expenses.....	5,000 00	1,572 44	3,427 56
Public Works (chargeable to Capital)—			
Ship channel. ....	1,019,000 00	999,762 43	19,237 57
Dredging plant.....	1,311,500 00	578,621 09	732,878 91
New icebreaker St. Lawrence. ....	500,000 00	251,082 14	248,917 86
New sweeping testing steamer St. Lawrence.....	100,000 00	62,576 55	37,423 45
Lighthouse and coast service—			
Agencies, rents and contingencies.....	142,000 00	141,074 67	925 33
Salaries and allowances to lightkeepers.....	450,000 00	449,999 34	66
Maintenance and repairs to lighthouses.....	725,000 00	712,447 60	12,552 40
Construction. of lighthouses.....	1,000,000 00	996,638 16	3,361 84
Signal service .....	60,000 00	52,316 29	7,683 71
Administration of pilotage .....	43,000 00	42,904 64	95 36
Maintenance and repairs to wharves.....	10,000 00	9,993 57	6 43
Breaking ice in lake Superior.. ....	40,000 00	38,061 68	1,938 32
Repairs to maritime road.....	1,000 00	1,000 00	
75 per cent claim of merchant.....	134 25	134 25	
Pensions to retired pilots.....	7,500 00	7,200 00	300 00
Telephone aids to navigation. ....	5,000 00	8 50	4,991 50
New steamship to replace <i>Scout</i> .....	133,000 00	130,957 50	2,042 50
" " <i>Maisonneuve</i> . ....	40,000 00	23 76	39,976 24
Allowance to Harbour Master at Amherstburg.....	400 00	400 00	
Scientific institutions—			
Meteorological service.....	213,600 00	201,805 01	11,794 99
Marine hospital.....	75,000 00	65,477 37	9,522 63
Shipwrecked and distressed seamen... ..	3,000 00	323 67	2,676 33
Steamboat inspection.....	73,000 00	65,063 16	7,936 84
Totals, Marine service.....	7,096,034 25	5,918,820 25	1,177,214 00
Civil government salaries.....	252,650 00	239,931 85	12,718 15
Contingencies.....	57,000 00	44,156 06	12,843 94
Totals, sal. and con. M. and F. . . . .	309,650 00	284,087 91	25,562 09
Recapitulation—			
Ocean and river service.....	1,143,900 00	1,110,948 87	32,951 13
Lighthouse and coast service.....	2,930,500 00	1,892,042 21	1,038,457 79
Scientific institutions.....	2,657,034 25	2,583,159 96	73,874 29
Shipwrecked and distressed seamen... ..	364,600 00	332,669 21	31,930 79
Civil government salaries.....	252,650 00	239,931 85	12,718 15
Contingencies.....	57,000 00	44,156 06	12,843 94
Grand total.....	7,405,684 25	6,202,908 16	1,202,776 09



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STATEMENT of Revenue Department of Marine, for fiscal year ending March 31, 1915.

	Gross.	Refunds.	Net.
	\$ cts.	\$ cts.	\$ cts.
Piers and Wharves.....	33,871 10	647 35	33,223 75
Harbours .....	1,014 00	225 00	789 00
DOMINION STEAMERS.			
<i>Champlain.</i>			
Freight, \$1,873.21 ; passengers, \$5,063.09 ; meals, \$157.60.....	7,093 90		
<i>Earl Grey,</i>			
Freight, \$3,584.05 ; passengers, \$1,466 ; meals, \$45.10 ; berths, \$293 ; express, \$152.59 .....	7,534 74		
<i>Minto.</i>			
Freight, \$8,974.24 ; passengers, \$3,374.75 ; meals, \$227.80 ; berths, \$881 ; express, \$743.98.....	14,201 77		
<i>Stanley.</i>			
Freight, \$4,984.51 ; passengers, \$2,224.25 ; meals, \$142.30 ; berths, \$694 ; express, \$535.11.....	8,580 17		
Winter mail service.....	168 80		35,579 38
Decayed pilots fund.....	5,948 60		5,948 60
Steamboat inspection fund.....	4,234 26	168 88	4,065 38
Steamboat engineers fees.....	1,642 00		1,642 00
Sick mariners fund.....	72,602 42	77 53	72,524 89
Signal service dues .....	676 00		676 00
Fines and forfeitures .....	25 00		25 00
Marine register fees ...	42 50		42 50
Examinations masters and mates.....	4,561 00	15 00	4,546 00
Casual revenue, sundries.....	637,059 43	471 66	636,587 77
C. G. S. <i>Earl Grey</i> (sold to Russian Government for \$493,000 and included in the casual revenue.)			
	797,255 69	1,605 42	795,650 27
Fines and forfeitures, Dept. to warrant.....		100 00	
		1,705 42	795,550 27

<i>Resume Wharfage.</i>		<i>Harbour Dues.</i>	
	\$ cts.		\$ cts.
Nova Scotia .....	5,329 84	Louisburg .....	493 00
New Brunswick.....	15,458 99	International pier, (Sydney).....	63 00
Prince Edward Island.....	1,852 01	Sorel.....	241 00
Quebec District.....	5,699 51	Comox .....	115 50
Montreal " .....	922 36	Victoria .....	101 50
Ontario " .....	4,564 13		
British Columbia.....	44 26		
	33,871 10		1,014 00



LIST OF WHARVES AND WHARFINGERS.

Locality.	Wharfinger.	Date of Appointment.		Remuneration allowed.	Amount forwarded to Department	
Nova Scotia.		Year.		p. c.	\$	cts.
Advocate.....	Vacant.....					
Annapolis Royal.....	R. P. Saunders.....	Oct.	8, 1913..	25%	7	92
Arisaig ... ..	Vacant.....					
Arichat ... ..	D. H. Cutler.....	Mar.	21, 1912..	25%	60	15
Avonport.....	L. F. Fuller.....	Aug.	13, 1902..	25%		
Babins Cove.....	S. Vigneau.....	Jan.	20, 1914..	25%	11	70
Baddeck.....	A. S. McDonald.....	Nov.	25, 1912..	25%	206	47
Bakers Point.....	Vacant.....					
Barrington Head.....	W. Doane.....	June	29, 1910..	25%	1	88
Barrington Passage.....	J. H. Christie.....	Aug.	31, 1896..	25%	142	63
Bass River.....	J. C. Fulton.....	Jan.	6, 1898..	25%		
Bayfield.....	Geo. Prowse.....	Jan.	20, 1914..	25%	3	99
Battery Point.....	F. L. Hayden.....	Oct.	15, 1914..	50%		
Bear Point.....	C. O. Venot.....	Oct.	29, 1912..	25%	0	05
Bear River.....	A. W. Dunn.....	Sept.	12, 1913..	25%		
Belliveau Cove.....	St. C. Theriault.....	Nov.	24, 1892..	25%	146	74
Black Point.....	E. W. Perry.....	April	30, 1913..	25%	14	25
Boularderie (north side).....	Vacant.....					
Broad Cove.....	".....					
Broad Cove Marsh.....	H. McDonald.....	Oct.	19, 1892..	25%		
Brooklyn.....	G. McLeod.....	Mar.	30, 1914..	25%	6	22
Brule Point.....	A. Craig.....	Dec.	26, 1898..	25%		
Burlington.....	Vacant.....					
Canada Creek.....	H. Dickey.....	Aug.	12, 1899..	25%	7	62
Canning.....	F. A. McBride.....	Nov.	16, 1912..	25%		
Chebogue (Town Point).....	J. A. Haley.....	Aug.	16, 1901..	25%		
Canso.....	J. Meagher.....	Dec.	13, 1905..	25%		
Cape Cove (Cape St. Mary).....	B. Doucette.....	Feb.	8, 1907..	25%	26	16
Castle Bay.....	R. H. McNeil.....	Mar.	14, 1914..	25%		
Centreville.....	A. Ward.....	May	28, 1899..	25%	121	45
Chipman Brook.....	H. Thorpe.....	April	11, 1907..	25%		
Church Point.....	D. Thibodeau.....	June	2, 1913..	25%	27	88
Clifton.....	Vacant.....					
Clark Harbour (Swims Pt.).....	J. A. Crowell.....	Mar.	21, 1913..	25%	57	40
Clyde Port.....	Vacant.....					
Cranberry Head (Sanford).....	A. Shaw.....	May	26, 1903..	25%		
Cribbins Point.....	A. R. Boyd.....	Oct.	2, 1895..	25%		
Deep Brook.....	J. C. W. Ditmars.....	Dec.	2, 1911..	25%	2	80
Delap Cove.....	R. W. McCaul.....	Nov.	28, 1889..	25%		
D'Escousse.....	A. Langlois.....	Aug.	26, 1912..	25%	40	25
Digby.....	J. O. Dakin.....	Feb.	5, 1912..	25%	2,947	34
Drumhead.....	Vacant.....					
Eagle Head.....	N. Leslie.....	Jan.	9, 1889..	25%		
East Bay.....	A. McGillivray.....	Aug.	3, 1903..	50%		
East Jeddore (see Bakers Pt.).....						
East River.....	Vacant.....					
Ecum Secum.....	".....					
Englishtown.....	".....					
Freeport.....	J. L. Stevens.....	May	8, 1912..	25%	74	14
Fruids Point.....	Vacant.....					
Gabarus.....	".....					
Grand Narrows.....	".....					
Granville Centre.....	H. Roney.....	July	6, 1903..	25%	49	48
Great Village.....	Vacant.....					
Halifax.....	(Under Dockyard).....					
Halls Harbour.....	J. C. Watson.....	Nov.	16, 1912..	50%	57	89
Hampton.....	C. E. Dunn.....	Dec.	22, 1906..	25%	33	84
Hantsport.....	Vacant.....				29	81
Harbourville.....	W. H. Perry.....	Oct.	28, 1914..	25%		
Havre-Bouché.....	Vacant.....					
Horton Landing.....	F. G. Currie.....	April	30, 1898..	25%	12	91
Indian Harbour.....	Vacant.....					
Iona.....	".....					
Iona (near I.C.R. bridge).....	".....					
Irish Cove.....	Vacant.....					
Isaac Harbour.....	T. D. Cooke.....	Jan.	30, 1902..	25%	3	64
Jordan Bay (Indian Bay).....	W. McKay.....	July	1, 1913..	25%	4	98



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LIST OF WHARVES AND WHARFINGERS—*Continued.*

Locality.	Wharfinger.	Date of Appointment.	Remuneration allowed.	Amount forwarded to Department.
<i>Nova Scotia—Con.</i>		Year.	p. c.	\$ cts.
Jordan River.....	Vacant.....			
Kelly Cove.....	J. A. Kenny.....	April 6, 1908..	25%	
Little Narrows.....	Vacant.....			
Lismore.....	".....			
Little River.....	O. E. Denton.....	Feb. 5, 1912..	25%	31 83
Maitland.....	Vacant.....			
Margaretville.....	Wm. Early.....	Jan. 15, 1912..	25%	65 01
Meteghan Cove.....	M. R. Robichaud..	Feb. 7, 1909..	25%	
Meteghan River.....	A. Melanson.....	Sept. 26, 1910..	25%	
Middle County Harbour.....	Vacant.....			
Miltia Point.....	D. McIntosh.....	Aug. 20, 1892..	25%	
Mill Creek.....	Jas. E. Porter.....	Jan. 31, 1914..	25%	73 42
Monday Point.....	Vacant.....			
Morden.....	J. Duggan.....	Aug. 23, 1914..	35%	9 89
New Edinburgh.....	C. T. D'Eon.....	April 3, 1912..	25%	
Newellton.....	A. C. Newell.....	April 23, 1906..	25%	33 58
Noel.....	Vacant.....			
Oak Point (Kingsport).....	Leased.....			
Ogilvie.....	J. L. Swindle.....	Mar. 4, 1907..	25%	
Owls Head Harbour.....	D. Palmer, Jr.....	April 13, 1910..		
Parker Cove.....	D. Robinson.....	Dec. 13, 1913..	25%	6 83
Parrsboro.....	W. Lavers.....	June 6, 1913..	50%	
Phinney Cove.....	A. Bent.....	Dec. 24, 1907..	25%	0 94
Picketts.....	F. A. Eaton.....	Aug. 2, 1899..	25%	81 89
Pictou Island.....	Vacant.....			
Plymouth.....	J. B. Purdy.....	Feb. 22, 1902..	25%	
Plymton.....	W. K. Smith.....	Aug. 8, 1890..	25%	9 53
Portapique.....	Vacant.....			
Port Dufferin.....	E. H. Balcom.....	May 5, 1910..	25%	
Port George.....	C. L. Reed.....	Jan. 9, 1915..	25%	21 45
Port Greville.....	Vacant.....			
Port Hastings.....	J. S. McKinnon.....	July 9, 1914..	25%	4 47
Port Hawkesbury.....	F. McInnis.....	Mar. 20, 1907..	25%	391 12
Port Hood.....	I. P. Smith.....	Dec. 20, 1912..	25%	
Port Joli.....	J. S. McAdam.....	Feb. 5, 1900..	25%	
Port Latour.....	E. R. Reynolds (acting).....	May 23, 1914..	25%	21 72
Port Lorne.....	F. Beardsley.....	June 9, 1897..	25%	36 98
Port Maitland.....	J. W. Raymond.....	Feb. 20, 1914..	25%	32 39
Port Morien.....	W. A. Brunn.....	Oct. 2, 1912..	25%	44 67
Port Mouton.....	I. Leslie.....	Oct. 17, 1912..	25%	2 98
Port Philip.....	C. Smith.....	Jan. 17, 1913..	25%	4 96
Port Wade.....	E. H. Johns.....	April 3, 1912..	25%	27 67
Poulamon.....	C. N. Pertus.....	Nov. 18, 1911..	25%	45 21
Rays Creek.....	A. E. Goodwin.....	April 3, 1912..	25%	17 69
Riverside.....	Vacant.....			
Salmon River.....	J. E. LeBlanc.....	Nov. 25, 1913..	25%	
Salmon River (Port Dufferin).....				
Saulnierville.....	J. T. Saulnier.....	Aug. 25, 1888..	25%	
Scotch Cove (White Point).....	Geo. Fitzgerald.....	Dec. 13, 1912..	50%	9 37
Shag Harbour.....	C. Shand.....	Dec. 5, 1914..	25%	
Sheet Harbour (See East and West Rivers).....				
Short Beach.....	".....			
Spencers Island.....	".....			21 27
Tanocok Island.....	W. B. Slaughenwhite....	Jan. 28, 1915..	25%	
Tenny Cape.....				
Tidnish.....	R. A. Smith.....	Sept. 27, 1901..	25%	
Tiverton.....	B. Blackford.....	Oct. 17, 1906..	25%	18 73
Tracadie.....	Vacant (breakwater only).....			
Tupperville.....				
Tusket Wedge.....				
Victoria Pier.....	D. Ogilvie.....	Aug. 13, 1911..	25%	
Wallace (S. Side).....	Vacant.....			
Wallace (N. Side).....	".....			
Walton.....	Vacant.....			
Washabuck Centre.....	John McNeil.....	April 20, 1910..	25%	
West Arichat.....	Vacant.....			



LIST OF WHARVES AND WHARFINGERS—Continued.

Locality.	Wharfinger.	Date of Appointment.	Remuneratitn allowed.	Amount forwarded to Department
<i>Nova Scotia—Con.</i>		Year.	p. c.	\$ cts.
West Head.....	H. N. Newell.....	Feb. 7, 1910..	25%	49 24
Westport.....	W. E. Kent.....	Sept. 16, 1912..	25%	75 61
West Pubnico.....	A. D'Eon.....	Feb. 20, 1914..	25%	34 91
West River.....	Vacant.....			
Whitehead.....	D. L. Munroe.....	Oct. 23, 1906..	25%	
White Point.....	E. West.....	Jan. 9, 1889..	25%	
Whitewaters.....	H. S. Winter.....	April 22, 1913..	25%	28 45
Whycocomagh.....	D. Livingstone.....	Dec. 22, 1906..	25%	
Wolfville.....	J. L. Franklin.....	Oct. 22, 1901..	25%	28 44
Wreck Cove.....	Vacant.....			
				5,329 84
<i>New Brunswick.</i>				
Alma.....	Vacant.....			
Andersons Hollow (waterside).....	I. H. Copp.....	Jan. 25, 1913..	25%	140 32
Black River.....	A. L. Moore.....	Jan. 23, 1914..	25%	
Bathurst.....	J. C. Meahan.....	June 15, 1912..	25%	
Bay du Vin.....	Vacant.....			
Buctouche.....	J. J. LeBlanc.....	May 2, 1912..	25%	
Burnt Church.....	Jas. Anderson.....	Feb. 26, 1904..	25%	
Campbellton.....	W. W. Doherty.....	Oct. 19, 1912..	25%	1,467 41
Cape Tormentine.....	J. D. Lane.....	May 24, 1912..	25%	13 40
Caraquet.....	H. Foulem.....	June 26, 1912..	25%	116 51
Caraquet Lower.....	J. O. Chaisson.....	Oct. 6, 1914..	25%	2 27
Clifton.....	Vacant.....			
Cocagne.....	J. T. Bourque.....	Mar. 13, 1907..	25%	
Coles Point.....	J. B. Tower.....	June 21, 1909..	25%	
Dalhousie.....	W. J. Smith.....	June 27, 1891..	25%	286 87
Edgett Landing.....	M. Stevens.....	Mar. 27, 1912..	25%	
Gardners Creek.....	J. J. Armstrong.....	Dec. 22, 1909..	25%	
Grandique.....	E. Babineau.....	Nov. 12, 1914..	25%	
Hopewell Cape.....	L. Layton.....	Mar. 25, 1912..	25%	50 58
Hopewell Hill.....	F. J. Robinson.....	July 17, 1909..	25%	
Lameque.....	N. Chiasson.....	Nov. 28, 1906..	25%	
Lorneville.....	Vacant.....			
Little Aldouane.....	Vacant.....			
Main River.....	A. S. Murray.....	Mar. 1, 1906..	25%	
Miscou Harbour.....	P. Roy.....	Nov. 9, 1910..	25%	
Moncton.....	Jas. Flanagan.....	June 16, 1911..	25%	92 07
Neguac.....	C. McIntosh.....	April 18, 1910..	25%	
Oromocto.....	J. E. Stocker.....	June 30, 1905..	25%	
Partridge Island (E. Wharf).....	Vacant.....			
Petit Rocher.....	J. Boudreau.....	Aug. 27, 1909..	25%	
Quaco (St. Martins) ..	A. S. Vaughan.....	Nov. 5, 1912..	25%	3 06
Rexton (Kingston).....	F. Harnett.....	Aug. 3, 1911..	25%	
Shediac.....	Vacant.....			
Shippigan.....	G. J. Henry.....	April 6, 1910..	25%	77 63
St. Andrews.....	S. H. Rigby.....	Nov. 26, 1914..	25%	
St. Louis Gully.....	Vacant.....			
St. Mary.....	H. M. Leger.....	Dec. 19, 1905..	25%	
St. Nicholas River.....	J. Grant.....	Sept. 27, 1901..	25%	
St. John West (Sand Point)				
Docks Nos. 6 and 7 ..	E. C. Elkin.....	Nov. 16, 1910..	(Not to exceed \$1,500 in year)	9,825 59
			\$1,500	3,376 51
St. John, Dock No. 15.....	J. E. Cowan (acting).....	Nov. 17, 1914..		
Stonehaven (Clifton).....	Vacant.....			
Tracadie.....	L. Breau.....	Oct. 12, 1910..	25%	6 77
Two Rivers (New Horton).....	J. Knowlton.....	May 27, 1913..	25%	
				15,458 99 -



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LIST OF WHARVES AND WHARFINGERS—Continued.

Locality.	Wharfinger.	Date of Appointment.		Remuneration Allowed.	Amount forwarded to Department	
		Year.		p. c.	\$	cts.
Prince Edward Island.						
Aitkens Ferry (Aitken's Shore Pier, Lower Montague).....	J. M. Hewitt.....	April	3, 1912..	25%	71	58
Annandale (Grand River).....	Isaac Howlett.....	Aug.	26, 1912..	25%	7	54
Bay View.....						
Belfast.....	J. F. Halliday.....	May	1, 1901..	25%	52	41
Brush Wharf.....	H. A. McDonald.....	Sept.	30, 1914..	25%	13	75
Campbell Cove.....	Vacant.					
Chapel Point.....	R. H. McCormack.....	July	19, 1912..	25%		
Charlottetown.....	Agency.....					
China Point.....	W. S. N. Crane.....	Sept.	18, 1885..	25%	877	43
Clifton.....	J. Gunn.....	May	4, 1900..	25%	36	86
Cranberry.....	Vacant.					
Crapaud and Victoria.....	Jas. Day.....	Sept.	30, 1912..	25%	205	13
Egmont Bay (McKee Pier).....	N. Gallant.....	Nov	9, 1891..	25%		
Georgetown.....	R. R. Jenkins.....	Oct.	14, 1890..	25%	22	01
Grand River South.....	W. A. Grossman.....	Jan.	14, 1914..	25%		
Greek River.....	Wm. Butler.....	April	24, 1911..	25%	18	16
Haggerty's.....	John Callaghan.....	June	25, 1912..	25%	22	47
Hickey's.....	P. McGuirk.....	April	2, 1914..	25%	35	55
Higgin Shore.....	H. Reeves.....	May	16, 1913..	25%		
Hurd Point.....	R. M. Holland.....	May	21, 1913..	25%		
Keir Shore.....	W. Hodgson.....	June	10, 1895..	25%	126	29
Lambert Pier (Montague).....	W. A. Johnstone.....	May	3, 1900..	25%	69	56
Lewis Point.....	Vacant.					
Mount Stewart.....	"				54	30
McPherson Cove.....	J. Christian.....	April	18, 1914..	25%	12	47
Murray Harbour,						
"    North Mink river	B. Richards.....	Jan.	19, 1909..	25%		
"    South.....	G. Billard.....	June	14, 1913..	25%	17	02
Nine Mile Creek.....	Chas. McDonald.....	Mar.	14, 1914..	25%		
North Cardigan.....	H. McDonald.....	May	23, 1914..	25%	37	32
Oyster Bed Bridge (S. Rustico).	H. Gallant.....	May	22, 1912..	25%		
Pinette.....	A. Young.....	Nov.	28, 1906..	25%		
Pownal.....	M. M. Haley.....	Oct.	13, 1896..	25%	20	14
Red Point.....	A. McAuley.....	May	24, 1912..	25%		
St. Marys Bay (Gaspereau)....	G. H. Hicken.....	June	11, 1910..	25%	14	43
Souris.....	Vacant.					
"    River.....	Vacant.					
Sturgeon.....	W. Griffin.....	Nov.	9, 1912..	25%	30	08
Tignish.....	J. E. Richard.....	Sept.	16, 1912..	25%	9	92
Vernon River.....	John Finlay.....	April	25, 1912..	25%	91	86
West Point.....	Vacant.					
Wood Island.....	J. Young.....	April	10, 1899..	25%	5	73
					1,852 01	
Quebec.						
Amherst (Magdalen Island)....	J. C. Boudreau.....	July	19, 1913..	25%	380	70
Anse aux Gascons.....	S. A. Huard.....	May	5, 1913..	25%	26	25
Anse à L'Islet (Grand Pebos)...	Jos. Duguay.....	April	17, 1912..	25%	191	30
Anse St. Jean.....	E. Lavoie.....	Aug.	13, 1995	\$19 00	53	00
Baie St. Paul.....	P. Cimon.....	July	27, 1912..	\$32 00	88	83
Beauport.....	F. Guillot.....	April	25, 1912..	50%	76	09
Berthier, en bas.....	J. Blais.....	Nov.	7, 1905..	50%	66	09
Bic, Pte à Côté.....	L. Roy.....	Nov.	16, 1912..	25%		
Carleton.....	E. Alain.....	Aug.	6, 1913..	\$50 00	49	24
Cap à l'Aigle.....	F. Charrette.....	July	27, 1912..	\$18 00	40	50
Chateau Richer.....	Neree Paré.....	May	13, 1912..	25%	175	82
Chicoutimi.....	T. Tremblay.....	May	23, 1901..	\$122 00	1,045	00
Eskimo Point.....	Vacant.					
Gaspé Basin.....	"					
Grand Entry.....	F. W. Leslie.....	Jan.	30, 1915..	25%	24	39
Grand River.....	Geo. Belliveau.....	April	27, 1912..	25%	130	91
Grindstone.....	Andre Gaudet.....	April	18, 1914..	25%	434	14
Ile aux Grues.....	D. Vézina.....	June	30, 1904..	25%		
Les Eboulements.....	H. Tremblay.....	Mar.	7, 1914..	\$29 00	62	97
L'Islet.....	Leased					



LIST OF WHARVES AND WHARFINGERS—Continued.

Locality.	Wharfinger.	Date of Appointment.		Remuneration allowed.	Amount forwarded to Dept.
Quebec—Con.		Year.		p. c.	\$ cts.
Matane .....	A. J. Pelletier .. . . .	Jan.	20, 1912..	50%	139 80
Mechins .....	G. E. Verreault .....	Feb.	14, 1913..	50%	79 85
Miguasha .....	Vacant.				
Montmagny Basin .....	R. Fournier .....	May	23, 1913..	25%	
Murray Bay .....	Wm. Tremblay .....	Mar.	14, 1913..	None.	457 10
New Carlisle .....	John C. Hall .....	April	25, 1912..	25%	111 13
Paspebiac .....	J. De Caen .....	Feb.	22, 1906..	50%	24 87
Perce .....	J. M. LeBoutillier .....	April	17, 1912..	40% and \$25 00	173 80
Port Daniel .....	F. X. Gagnon .....	Feb.	26, 1907..	\$50 00	26 60
Roberval .....	Simon Martel .....	June	9, 1914..	50%	272 41
Rimouski .....	W. Lavoie .....	Mar.	27, 1907..	50%	80 93
Rivière Blanche .....	A. Quimper .....	Jan.	20, 1912..	50%	104 19
" du Loup .....	E. Madore (acting) .....	June	17, 1913..	\$146 00	442 55
" Ouelle (Pte. aux Origineaux) .....	J. A. Gamache (acting) ..	June	23, 1913..	25%	1 54
St. Alphonse de Bagotville .....	Thos. Fortier .. . . .	April	20, 1909..	25%	465 00
Ste. Cecile du Bic .....	O. LeBel .....	Jan.	20, 1912..	25%	32 42
St. Irene .....	G. Bouchard .....	Feb.	10, 1903..	25%	7 50
St. Jean d'Orleans .....	Vacant				100 00
St. Jean Port Joli .....	L. Legros .....	Jan.	16, 1913..	25%	
St. Laurent d'Orleans .....	J. Godbout .....	May	11, 1904..	50%	51 41
St. Nicholas .....	Leased				50 00
St. Simeon .....	E. Tremblay .....	Mar.	7, 1913..	25%	27 35
St. Thomas de Montmagny .....	R. Fournier .....	May	23, 1913..	25%	74 83
Tadoussac .....	A. Gingras .....	May	29, 1906..	25% and \$30 00	141 00
Trois Pistoles .....	Vacant.				
					5,699 51
Montreal District.					
Agne (St. Agnes) .....	L. A. Roy .....	Nov.	27, 1891..	25%	
Angers .....	Vacant				
Boucherville .....	Nap. Sicotte .....	April	17, 1913..	25%	
Cap de la Madelaine .....	Vacant				
Cascades .....	"				
Cedars .....	C. Laboureadière .....	Mar.	27, 1907..	50%	
Coteau du Lac .....	A. St. Amour .....	July	4, 1912..	50%	
Coteau Landing .....	N. Beriault .....	June	29, 1910..	50%	35 71
Desjardins .....	P. Desjardins .....	Mar.	31, 1906..	25%	
East Templeton .....	L. Campeau .....	May	13, 1912..	50%	33 44
Fassett .....	F. Thomas .....	April	28, 1914..	50%	42 77
Graham .....	J. A. Bertrand .....	Feb.	22, 1911..	50%	18 88
Greece Point .....	T. Ranger .....	July	16, 1902..	25%	
Hudson .....	C. Bertrand .....	June	25, 1912..	50%	56 09
Ile Perrot, north .....	O. Legault .....	May	30, 1910..	25%	64 11
Ile Perrot, south .....	R. Daoust (acting) .....	Aug.	8, 1908..	50%	
Knowlton Landing .....	L. Knowlton .....	Mar.	23, 1910..	25%	33 75
Lacolle .....	R. J. Robinson .....	Mar.	8, 1894..	25%	
Longueuil .....	Under Montreal Harbour Commissioners ..				
Magog .....	D. E. Peters .....	June	10, 1906..	50%	74 59
Masson .....	O. Daoust .....	May	2, 1913..	\$100	
Megantic Village (Lake Megantic) .....	Vacant .....				
Montebello .....	"				50 00
Papineauville .....	A. Chabot .....	April	10, 1912..	50%	139 71
Peel Head Bay .....	H. M. Lake .....	Nov.	6, 1914..	25%	
Pointe Fortune .....	Wm. Brown .....	April	25, 1910	25%	49 30
Pointe aux Trembles .....	Vacant				
Pointe à Valois .....	L. Castonguay .....	Oct.	20, 1897.	25%	29 57
Port Lewis .....	S. Carson .....	Dec.	17, 1912..	25%	10 00
Rigaud .....	O. Mallette .....	Oct.	14, 1907..	50%	
					Except those from tolls and dues from use of scales.
Rigaud .....	J. Vallie, asst. .. . . .	May	5, 1908..	50% of dues from use of scales..	62 28



## SESSIONAL PAPER No. 21

LIST OF WHARVES AND WHARFINGERS—*Continued.*

Locality.	Wharfinger.	Date of Appointment.	Remuneration Allowed.	Amount
<i>Montreal District—Con.</i>		Year.	p. c.	\$ cts.
Sabrevois.....	Vacant.....			
St. Anicet.....	Moïse Côté.....	Aug. 30, 1913..	50%	32 12
Ste. Anne de Bellevue.....	M. C. Bezner.....	May 21, 1908..	50%	133 55
St. Denis.....	Vacant.....			
St. Marc.....	".....			
St. Zotique.....	A. Bissonnette, ...	May 7, 1906..	25%	2 78
Sorel.....	For use of ship yard fleet only.....			
Varennas.....	O. Payette.....	Dec. 24, 1914..	25%	
Vaudreuil.....	O. Boileau.....	Mar. 14, 1914..	25%	40 72
Vercheres.....	W. Chaput.....	Jan. 30, 1915..	25%	8 85
Ville Marie.....	J. J. Maillard.....	Feb. 2, 1899..	50%	
Wharfage general.....	Montreal district.....			4 14
				922 36
<i>Ontario</i>				
Barry's Bay.....	S. E. Smith.....	Aug. 25, 1905..	25%	
Baysville.....	J. D. Smith.....	Sept. 25, 1906..	25%	
Blinā River.....	W. H. McGauley.....	April 14, 1908..	50%	436 65
Bracebridge.....	W. C. Simmons.....	Sept. 24, 1908..	25%	
Brighton.....	W. S. Strong.....	Mar. 7, 1913..	25%	84 10
Bronte.....	T. Joyce.....	Dec. 17, 1912..	25%	23 25
Bruce Mines.....	W. Fleming.....	April 15, 1902..	50%	106 81
Burk's Falls.....	A. J. Collins.....	Feb. 8, 1907..	25%	
Chute à Blondeau.....	O. Cousineau.....	May 28, 1909..	40%	83 84
Cockburn Island (Tolsmaville).....	D. J. McLeod.....	June 29, 1910..	50%	19 28
Depot Harbour.....	W. H. Hoppins.....	May 8, 1907..	25%	
Echo Bay.....	T. H. McWater.....	June 5, 1912..	25%	
Gananoque.....	Amos Claire.....	Mar. 3, 1915..	25%	
Goderich.....	M. McDonald.....	Mar. 7, 1913..	25%	120 00
Haileybury.....	R. J. Budd.....	May 25, 1914..	25%	204 60
Hilton.....	Peter Brown.....	Mar. 25, 1912..	50%	181 30
Honora.....	G. E. Hawke.....	May 12, 1909..	25%	
Huntsville.....	Leased.....			
Kingsville.....	W. H. Black.....	Aug. 1, 1902..	25%	214 96
Lakeport.....	J. Dougherty.....	Oct. 17, 1914..	25%	
L'Orignal.....	L. Tourangeau.....	May 22, 1912..	25%	66 89
Leamington.....	J. E. Johnson.....	May 11, 1906..	25%	491 31
Lion's Head.....	Chas. Knapp.....	Feb. 6, 1906..	25%	
Maganatawan.....	C. Ross.....	April 6, 1910..	25%	
Midland.....	J. Yates.....	Oct. 26, 1905..	25%	273 72
Michipicoten Harbour.....	Geo. Reed.....	Nov. 27, 1913..	25%	60 08
Morpeth.....	Vacant.....			
North Bay.....	M. LeBœuf.....	Mar. 21, 1910..	50%	
Oshawa.....	W. T. Henry.....	Aug. 10, 1904..	\$400	
Owen Sound.....	Leased.....			
Pelee Island.....	Vacant.....			448 63
Pembroke.....	Thos. Lowe.....	Mch. 7, 1913..	\$200	45 80
Peterborough, Wolf St.....				
Port Finlay.....	Vacant.....			
Port Rowan.....	Jos. Ellis.....	June 8, 1910..	25%	
Port Whitby.....	J. Watson.....	Sept. 30, 1912..	25%	82 47
Providence Bay.....	E. E. Pattison.....	Feb. 19, 1915..	50%	
Richards Landing.....	Jas. Burnside.....	Mar. 16, 1912..	50%	32 72
Rondeau.....	Jas. Claus.....	Nov. 27, 1913..	25%	
Rosseau.....	S. A. Foote.....	April 17, 1912..	50%	148 11
Rosspport.....	Vacant.....			
Sault Ste Marie.....	G. A. Boyd.....	April 9, 1897..	\$100 per mo. and \$200 per year for Asst.....	928 57
Scudder Dock.....	H. K. Quick.....	May 21, 1915..	25%	199 39
Sheguiandah.....	Wm. Stevens.....	Nov. 8, 1910..	25%	26 85
Silver Centre.....	H. Pickering.....	July 17, 1911..	25%	17 40
Silver Water (Cooks Bay).....	Chas. Kent.....	May 28, 1909..	50%	
Southampton.....	H. Harmer.....	May 24, 1912..	25%	37 63
South Lancaster.....	John Munro.....	Sept. 19, 1912..	25%	22 02



LIST OF WHARVES AND WHARFINGERS.—*Concluded.*

Locality.	Wharfinger.	Date of Appointment.	Remuneration allowed.	Amount forwarded to Department
<i>Ontario—Con.</i>		Year.	p. c.	\$ cts.
Summerstown.....	A. Bonneville.....	May 25, 1910..	25%	
Tenby Bay.....	P. Jacob.....	May 22, 1912..	25%	6 75
Thessalon.....	W. H. Hill.....	Feb. 29, 1912..	50%	66 12
Treadwell.....	H. Deschesne.....	April 24, 1914..	50%	65 22
Wendover.....	M. St. Pierre.....	Feb. 20, 1913..	50%	43 80
Warton.....	E. Shackleton.....	Sept. 12, 1913..	25%	
Windermere.....	I. Hough.....	Oct. 28, 1914..	25%	25 85
				4,564 13
<i>Manitoba</i>				
Selkirk.....	J. A. Hunt.....	May 3, 1912..	25%	
Victoria Harbour.....	Vacant.			
<i>British Columbia</i>				
Kalso.....	Vacant.			
Ladysmith.....	D. T. Conway.....	Feb. 6, 1906..	25%	
Langley.....	Vacant.			
Masset.....	Vacant.			
Mirror Lake.....	Vacant.			
Sidney.....	C. C. Cochrane.....	Nov. 25 1910..	25%	44 26
Stewart.....	Vacant.			
				44 26



SESSIONAL PAPER No. 21

STATEMENT of Sick Mariners Dues Collected.

Name of Port.	Collections.	Name of Port.	Collections.
<i>Nova Scotia.</i>	\$ cts.	<i>Quebec—Con.</i>	\$ cts.
Amherst . . . . .	176 28	Quebec . . . . .	7,690 13
Annapolis . . . . .	58 34	Rimouski . . . . .	174 90
Antigonish . . . . .	21	St. Johns . . . . .	807 89
Arichat . . . . .	24 12	Three Rivers . . . . .	223 77
Baddeck . . . . .	118 35		
Barrington . . . . .	19 61		21,603 81
Bridgewater . . . . .	238 00	<i>New Brunswick.</i>	
Canso . . . . .	32 58	Bathurst . . . . .	72 25
Digby . . . . .	102 99	Campbellton . . . . .	300 19
Glace Bay . . . . .	3 50	Chatham . . . . .	496 95
Halifax . . . . .	14,313 85	Dalhousie . . . . .	273 37
Kemptville . . . . .	54 45	Fredericton . . . . .	40 75
Liverpool . . . . .	109 15	Moncton . . . . .	653 55
Lockeport . . . . .	16 55	Newcastle . . . . .	250 03
Lunenburg . . . . .	343 97	Sackville . . . . .	20 72
North Sydney . . . . .	1,492 85	St. Andrews . . . . .	71 68
Parrsboro . . . . .	530 02	St. John . . . . .	7,798 49
Pictou . . . . .	275 72	St. Stephens . . . . .	85 73
Port Hawkesbury . . . . .	128 45		
Port Hood . . . . .	6 69		10,063 71
Shelburne . . . . .	51 51	<i>Prince Edward Island.</i>	
Sydney . . . . .	5,251 13	Charlottetown . . . . .	362 32
Truro . . . . .	4 83	Summerside . . . . .	112 94
Weymouth . . . . .	126 58		
Windsor . . . . .	1,037 29		475 26
Yarmouth . . . . .	429 50	<i>British Columbia.</i>	
	24,946 52	Nanaimo . . . . .	3,124 14
<i>Quebec.</i>		New Westminster . . . . .	7 77
Gaspé . . . . .	92 65	Prince Rupert . . . . .	500 34
Montreal . . . . .	12,445 90	Vancouver . . . . .	4,251 66
Paspébiac . . . . .	92 95	Victoria . . . . .	7,629 21
Perce . . . . .	75 62		15,513 12

RECAPITULATION.

Nova Scotia . . . . .	\$24,946 52
New Brunswick . . . . .	10,063 71
Prince Edward Island . . . . .	475 26
Quebec . . . . .	21,603 81
British Columbia . . . . .	15,513 12
	\$72,602 42

MARINE REGISTER FEES.

<i>Nova Scotia.</i>		<i>Manitoba.</i>	
Halifax . . . . .	2 60	Winnipeg . . . . .	1 40
Liverpool . . . . .	80		
Lunenburg . . . . .	3 20	Total . . . . .	1 40
Shelburne . . . . .	1 20		
Yarmouth . . . . .	60		
Total . . . . .	8 40		



MARINE REGISTER FEES.—*Concluded.*

Name of Port.	Collections.	Name of Port.	Collections.
	\$ cts.		\$ cts.
<i>Prince Edward Island.</i>		<i>British Columbia.</i>	
Charlottetown . . . . .	60	Victoria . . . . .	10 20
Total . . . . .	60	Total . . . . .	10 20
<i>Quebec.</i>			
Montreal . . . . .	6 90		
Quebec . . . . .	10 19		
Total . . . . .	17 09		
<i>Ontario.</i>		RECAPITULATION.	
Midland . . . . .	20	Nova Scotia . . . . .	8 40
Ottawa . . . . .	1 25	Prince Edward Island . . . . .	60
Picton . . . . .	1 08	Quebec . . . . .	17 09
Toronto . . . . .	2 28	Ontario . . . . .	4 81
Total . . . . .	4 81	Manitoba . . . . .	1 40
		British Columbia . . . . .	10 20
		Total . . . . .	42 50

SIGNAL STATION DUES.

Name of Port.	Collections.
	\$ cts.
<i>Province of Nova Scotia.</i>	
Halifax . . . . .	676 00

STATEMENT of Steamboat Inspection, Fees Collected.

Name of Port.	Collections.	Name of Port.	Collections.
	\$ cts.		\$ cts.
<i>Nova Scotia.</i>		<i>Ontario.</i>	
Halifax . . . . .	1,729 40	Fort William . . . . .	45 68
North Sydney . . . . .	270 16	Windsor . . . . .	138 40
Total . . . . .	1,999 56	Total . . . . .	184 08
<i>New Brunswick.</i>		<i>British Columbia.</i>	
St John . . . . .	392 96	Vancouver . . . . .	881 50
Total . . . . .	392 96	Victoria . . . . .	515 60
		Total . . . . .	1,397 10
<i>Quebec.</i>		RECAPITULATION.	
Quebec . . . . .	260 56	Nova Scotia . . . . .	1,999 56
Total . . . . .	260 56	New Brunswick . . . . .	392 96
		Quebec . . . . .	260 56
		Ontario . . . . .	184 08
		British Columbia . . . . .	1,397 10
		Total . . . . .	4,234 26



## SESSIONAL PAPER No. 21

## LIST OF HARBOURS AND HARBOURMASTERS.

Name of Port.	Harbour Master.	Date of Appointment.	Gross Collections.	Remuneration.	Net.
<i>Ontario.</i>			\$ cts.	\$ cts.	\$ cts.
Amherstburg	Geo. Gott	May 13, 1912..	Nil.	200 00	Nil.
Bronte	Thos. Joyce	Dec. 17, 1912..	2 00	200 00	Nil.
Byng Inlet	H. L. Grasswell	Feb. 20, 1912..	Nil.	200 00	Nil.
Collingwood	Robt. Hughes	Nov. 25, 1913..	28 50	300 00	Nil.
Depot Harbour	A. F. Butterworth	April 14, 1913..	19 00	200 00	Nil.
Fort William	S. F. Scagel	Aug. 1, 1914..	55 00	600 00	Nil.
French River	C. Dean D. Udy	Mar. 25, 1912..	2 00	200 00	Nil.
Goderich	M. McDonald	April 17, 1912..	30 00	300 00	Nil.
Little Current	W. D. Ritchie	April 3, 1912..	157 00	200 00	Nil.
Meaford	Wm. Cooke	July 1, 1913..	16 50	200 00	Nil.
Midland	Wm. McClinchey	Aug. 16, 1913..	59 50	500 00	Nil.
Owen Sound	W. H. Smith	April 25, 1912..	59 50	200 00	Nil.
Oshawa	W. T. Henry	Aug. 10, 1904..	Nil.	300 00	Nil.
Parry Sound	C. A. Thompson	June 2, 1914..		200 00	
Penetanguishene	Peter Light	May 7, 1906..	10 50	200 00	
Port Arthur	B. Guerard	May 21, 1897..	189 00	300 00	
Port McNicoll	(See Victoria Harbour)				
Port Stanley	F. R. Dale	Aug. 13, 1912..	20 00	200 00	
Rondeau	Jas. Claus	Nov. 27, 1913..	7 00	100 00	
Sault Ste. Marie	S. L. Penhorwood	May 2, 1912..	40 00	300 00	
Southampton	W. H. Johnston	Oct. 1882..	8 50	100 00	
Sarnia	R. McAdam	May 3, 1886..	Nil.	300 00	
Trenton	Jos. Coutts	May 13, 1912..	41 50	200 00	
Whitby	J. Watson, Jr.	June 7, 1912..	24 00	200 00	
Victoria Harbour	Thos. Nottingham	May 1, 1911..	200 00	200 00	
<i>Quebec.</i>					
Amherst	John Cassidy	Sept. 2, 1878..	10 00	200 00	Nil.
Anse aux Gascons	John Mourant	June 28, 1905..	Nil.	100 00	Nil.
Bersimis	L. Thibault	Dec. 13, 1905..	"	200 00	
Bic	F. Bellevance	April 25, 1912..	"	200 00	
Bonaventure	F. Arsenault	April 24, 1913..	22 25	100 00	
Carleton	E. Alain	July 11, 1913..	Nil.	200 00	
Cape Cove	R. J. Lenfesty	June 7, 1912..	"	200 00	
Caolan River	T. Bourdages	April 11, 1907..	"	100 00	
Chicoutimi	A. Sturton	June 8, 1886..	"	200 00	
Escoumains					
Grand Entry	A. Cyr	July 10, 1907..	Nil.	200 00	
Grand River	Geo. Belliveau	April 25, 1912..	"	100 00	
Gaspé	F. G. Eden	April 1, 1889..	"	500 00	Nil.
House Harbour	G. Lafrance	Dec. 12, 1910..	59 50	200 00	
Lachine (under Montreal)	Harbour Commission				
Maria	A. Cyr	March 29, 1905..	Nil.	100 00	
Matane	J. Levesque	Jan. 20, 1912..	"	200 00	
Malbaie	J. Thompson	May 27, 1913..	15 00	200 00	
Metis	J. H. Ferguson	Mar. 10, 1896..	Nil.	200 00	
Montmagny	R. Fournier	May 23, 1913..	2 50	200 00	
New Carlisle	J. Chisholm	April 22, 1902..	"	100 00	
New Richmond	C. LeBlanc	March 17, 1915..	30 50	200 00	
Nouvelle	J. Casey	Jan. 3, 1903..	Nil.	200 00	
Oak Bay	T. Harper	Sept. 11, 1909..	"	200 00	
Paspébiac	L. H. Castilloux	March 25, 1915..	"	150 00	
Percé	E. Donoghue	Oct. 10, 1903..	8 00	100 00	
Port Daniel	B. Langlois	Feb. 26, 1907..	Nil.	200 00	
Rimouski	A. P. St. Laurent	May 31, 1896..	44 50	200 00	
Rivière du Loup	F. E. Gilbert	Oct. 5, 1902..	Nil.	100 00	
St. Godfroy	J. Grenier	June 5, 1905..	"	100 00	
St. Omer	A. Laviolette	August 1, 1914..	5 00	200 00	
St. Johns	G. H. Farrar	March 20, 1897..	572 50	600 00	
Sault au Mouton					
Sorel	P. Lavallee	Feb. 5, 1912..	741 00	500 00	241 00
Trois Pistoles	O. Drapeau	Nov. 25, 1911..	Nil.	100 00	Nil.
Tadoussac	A. Gingras	June 6, 1906..	"	200 00	



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LIST OF HARBOURS AND HARBOURMASTERS.—*Continued.*

Name of Port.	Harbour Master.	Date of Appointment.	Gross Collections.	Remuneration.	Net.
<i>New Brunswick.</i>		Year.	\$ cts.	\$ cts.	\$ cts.
Alma.....	G. W. Parsons.....	May 2, 1898..	61 00	100 00	Nil.
Back Bay.....	See Letete.				
Baie Verte.....	See Port Elgin.				
Blacks and Beaver Har- bour.....	E. W. Cross.....	Sept. 17, 1883..	17 50	100 00	Nil.
Bathurst.....	M. T. Daly.....	April 15, 1907..	61 00	200 00	Nil.
Buctouche.....	H. Hutchinson..	April 17, 1897..	Nil.	100 00	Nil.
Campbellton.....	W. W. Doherty..	Oct. 24, 1912..	113 50	200 00	
Campobello Island.....	H. Calder.....	April 25, 1912..	Nil.	100 00	
Cape Bald.....	J. L. Cormier.....	Aug. 19, 1911..	"	200 00	
Cape Tormentine.....	M. S. Treen.....	May 13, 1901..	"	200 00	
Caraquet.....	J. Lanteigne.....	June 11, 1913..	4 50	150 00	
Chatham.....	R. J. Walls.....	April 13, 1898..	142 50	300 00	Nil.
	C. Brown, deputy.....	May 29, 1912..			
Cocagne.....	J. T. Bourque.....	June 23, 1905..		100 00	
Dalhousie.....	W. S. Smith.....	Mar. 19, 1888..	103 50	200 00	
Dipper Harbour.....	A. G. Thompson.....			200 00	
Dorchester.....	Jas. Shea.....	Oct. 25, 1900..	28 50	200 00	
Fairhaven.....	A. Calder.....	July 30, 1901..	3 00	200 00	
Fredericton.....					
Grand Harbour.....	T. Ingalls, sr.....	April 19, 1907..	Nil.	100 00	
Gull Rock Channel.....	G. A. Johnson.....	Mar. 27, 1904..	"	100 00	
Harvey.....	W. Wood.....	June 9, 1903..	38 00	100 00	
Heron Channel.....	G. N. Taylor.....	Nov. 25, 1911..	14 00	200 00	
Hillsboro.....	J. T. Gallagher.....	June 26, 1912..	34 00	100 00	
Hopewell Cape.....	J. H. Christopher....	June 26, 1899..	Nil.	200 00	
Ledge of St. Stephen...	See St. Stephen.				
Letete.....	H. W. Harris.....	Feb. 16, 1906..	4 40	100 00	
L'Etang.....	See Letete.				
Loggieville.....	See Chatham.				
Moncton.....	E. P. Cook.....	July 4, 1912..	10 00	200 00	
Miscou Gully.....	See Little Shippigan.				
Musquash.....	J. McNulty.....	Sept 28, 1896..	3 60	100 00	
Newcastle.....	John Russell.....	June 27, 1904..	51 50	300 00	
Northern Grand Manan.	J. E. Gaskill.....	Mar. 20, 1907..	4 00	100 00	
North Head.....	See Northern Grand Manan.				
Port Elgin.....	C. Trenholme.....	April 3, 1907..	2 50	200 00	
Pokemouche.....	M. Landry.....	May 13, 1901..	Nil.	100 00	
Quaco (see St. Martin).					
Richibucto.....	J. A. Jardine.....	May 11, 1874..	9 50	200 00	
Sackville.....	E. Chase.....	May 11, 1904..	4 00	200 00	
Seal Cove.....	W. Russell.....	Feb. 22, 1913..	6 50	100 00	
St. Andrews.....	W. Clark.....	Dec. 23, 1911..	51 00	100 00	
St. George.....	A. Stewart.....	April 3, 1912..	51 50	100 00	
St. Stephen.....	A. McWha.....	July 9, 1914..	Nil.	100 00	
St. Stephen, The Ledge..	T. Holmes.....	Dec. 17, 1913..	"	100 00	
St. Martin.....	A. S. Vaughan.....	Nov. 1, 1912..	47 50	100 00	Nil.
Shediac.....	J. M. Hebert.....	Sept. 9, 1911..	5 00	300 00	
Shippigan.....	C. Gionet.....	June 25, 1912..	Nil.	100 00	
Shippigan, Little.....	J. Beaudin.....	Oct. 27, 1906..	"	100 00	
Shemogue, Great.					
Shemogue, Little.					
Tracadie.....	Vacant.				
Waterside.....	J. L. H. Copp.....	Jan. 25, 1913..	4 00	100 00	
West Isles.....	B. Simpson.....	Sept. 27, 1901..	Nil.	200 00	
Whitehead.....	A. H. Cheney.....	April 19, 1907..	4 50	100 00	
<i>Nova Scotia.</i>					
Abbots Harbour.....	F. U. D'Entremont..	May 23 1901..		200 00	
Advocate Harbour.....	R. D. Atkinson.....	May 2, 1913..	23 00	100 00	Nil.
Amherst.....					
Annapolis.....	J. Lindgren.....	July 7, 1898..	6 50	200 00	
Annapolis Royal.....	(See Annapolis).				
Apple River.....	W. Green.....	May 24, 1911..	34 00	200 00	



## SESSIONAL PAPER No. 21

LIST OF HARBOURS AND HARBOURMASTERS.—*Continued.*

Name of Port.	Harbour Master.	Appointment.	Gross Collections.	Remuneration.	Net.
<i>Nova Scotia—Con.</i>			\$ cts.	\$ cts.	\$ cts.
Arichat. . . . .	Chas. V. Herbin . . . . .	Nov. 27, 1913..	Nil.	200 00	
Aspotogan. . . . .	(See Northwest Cove)				
Aspy Bay. . . . .	(See Bay St. Lawrence)				
Baddeck. . . . .	P. L. McFarlane . . . . .	Mar. 6, 1909..	Nil.	100 00	
Barrington . . . . .	R. R. Penny. . . . .	June 5, 1914 .	6 00	200 00	
Bayfield . . . . .	D. Sutton . . . . .	Mar. 22, 1910..	Nil.	100 00	
Bay St. Lawrence . . . . .	J. W. Fitzgerald . . . . .	Dec. 22, 1910..	6 00	200 00	
Bay Shore . . . . .	(See Port Lorne) . . . . .				
Bear River. . . . .	W. McFadden . . . . .	Sept. 27, 1897..	18 60	100 00	
Beaver Harbour. . . . .	H. Hawbolt . . . . .	Sept. 22, 1888..	1 00	100 00	
Belliveau. . . . .	F. LeBlanc . . . . .	Dec. 6, 1912 .	8 00	200 00	
Big Harbour . . . . .	S. G. McKenzie . . . . .	Apr. 18, 1908..	Nil.	200 00	
Bourgeois . . . . .	(See River Bourgeois)				
Bridgewater. . . . .	W. Oakes . . . . .	Jan. 28, 1896..	122 50	200 00	
(a) Bras d'Or, including New Campbell- town. . . . .	D. Carey. . . . .	Feb. 12, 1912..	Nil.	200 00	Nil.
(b) " Great . . . . .	(See Big Harbour) . . . . .				
(c) " Little, Washa- buck River. . . . .	V. McLean . . . . .	Sept. 23, 1907..	Nil.	100 00	Nil.
(d) " Little, Grand Narrows . . . . .	D. J. Campbell. . . . .	Mar. 28, 1905..	Nil.	100 00	Nil.
(e) " Little, Alder Pt., Moore Pt. . . . .	J. M. LeBlanc. . . . .	Oct. 9, 1909..	Nil.	200 00	Nil.
Big Pond. . . . .					
Canning . . . . .	F. A. McBride. . . . .	Jan. 18, 1913..	Nil.	200 00	
Cape Breton Pier. . . . .	(See Glasgow) . . . . .				
Cape Canso. . . . .	Geo. Oliver . . . . .	Feb. 14, 1905..	103 60	150 00	
Cape Negro . . . . .	A. D. Perry. . . . .	May 18, 1881..	5 50	200 00	
Cape Sable Island . . . . .	(See Clark Harbour)				
Chebogue. . . . .	W. L. Jenkins . . . . .	Sept. 28, 1912..	Nil.	200 00	
Chester. . . . .	D. Mills. . . . .	Jan. 26, 1915..	27 50	100 00	
Cheticamp . . . . .	F. Aucoin. . . . .	Apr. 15, 1876 .	130 00	100 00	
Clark Harbour . . . . .	J. G. Nickerson. . . . .	Mar. 23, 1904..	16 50	200 00	
Clementsport. . . . .	J. LeCain . . . . .	Oct. 18, 1898..	Nil.	150 00	
Coleman Cove. . . . .	(See Northwest Cove)				
County Line to Grand Narrows . . . . .					
Country Harbour . . . . .	(See Isaacs Harbour) . . . . .				
Cow Bay . . . . .	(See Port Morien) . . . . .				
Cranberry Point. . . . .	(See Little Narrows) . . . . .				
D'Escousse. . . . .	A. Langlois. . . . .	Dec. 23, 1911..	11 00	100 00	
Digby. . . . .	H. Anderson. . . . .	June 19, 1902..	44 00	200 00	
East Bay. . . . .	D. McInnis. . . . .	Apr. 5, 1886..		100 00	
East Jeddore . . . . .	(See Jeddore) . . . . .				
Englishtown . . . . .	(See St. Ann Bay) . . . . .				
Fourchu . . . . .	A. B. Hooper. . . . .	Apr. 25, 1912 .		100 00	
Freeport . . . . .	F. B. Prime. . . . .	May 2, 1912..	6 00	200 00	
French Village. . . . .	(See St. Margaret Bay)				
Fisher Cove. . . . .	(See St. Anns) . . . . .				
Gabarus. . . . .	Geo. Harris. . . . .	Feb. 22, 1911..	Nil.	100 00	
Glasgow & C. B. Pier, Sydney . . . . .	A. McQuarrie. . . . .	Oct. 30, 1880..	54 15	300 00	
Getsons Cove. . . . .	(See Lahave) . . . . .				
Glace Bay. . . . .	(See Little Glace Bay)				
Gillis Point. . . . .	(See Little Bras d'Or Lake) (d) . . . . .				
Grand Narrows . . . . .	(See County Line to Grand Narrows) . . . . .				
Great Bras d'Or. . . . .	(See Big Harbour) . . . . .				
Green Cove . . . . .	(See Port Maitland) . . . . .				
Guysboro. . . . .	T. O'Connor . . . . .	Apr. 2, 1913..	4 00	100 00	
Halifax . . . . .	F. G. Rudolf. . . . .	May 13, 1910..		1800 00	
Halls Harbour . . . . .	J. Watson. . . . .	Dec. 2, 1912 .	Nil.	100 00	
Hantsport. . . . .	Wm. McCullough. . . . .	Jan. 17, 1890..	35 50	300 00	



LIST OF HARBOURS AND HARBOURMASTERS.—Continued.

Name of Port..	Harbour Master.	Appointment.	Gross Collections.	Remuneration.	Net Collections.
<i>Nova Scotia—Continued.</i>			\$ cts.	\$ cts.	\$ cts.
Hubbards.....	Neil C. McLean .....	Nov. 5, 1913..	4 50	200 00	
Hawkesbury .....	See Port Hawkesbury				
Indian Bay.....	See Jordan Bay.				
Ingonish (North Bay)....	A. McLean. ....	April 21, 1910..	7 50	200 00	
" (South Bay)....	J. C. Williams..	Nov. 25, 1912..	5 00	100 00	
Ingram River.....	E. Huntley.....	Jan. 19, 1907..	72 00	100 00	
International Pier, Sydney.....	M. J. Neville.....	Oct. 30, 1880..	363 00	300 00	63 00
Isaac Harbour.....	T. S. Cook.....	June 19, 1900..	10 50	100 00	
Jeddore.....	J. E. Jemox .....	Aug. 5, 1912..	5 00	100 00	
Joggins Mines.....	A. Brine.....	Jan. 2, 1913..	30 00	200 00	
Jordan Bay.....	F. P. Thorburn....	Mar 11, 1901..	2 00	150 00	
Kelly Cove.....	S. J. Keddy .....	Oct. 3, 1914..	Nil.	100 00	
Lahave or Getson Cove.	G. H. Zwicker.....	Feb. 25, 1875..	59 50	300 00	
L'Ardoise, Upper and Lower .....	Geo. Burke.....	Aug. 29, 1884..	2 50	100 00	
Larrys Head and River.	See Torbay.				
Lingan.....					
Liscomb.....	L. Wilson .....	Feb. 20, 1900..	18 00	200 00	
Little Glace Bay .....	E. D. Rigby .....	May 8, 1884..	34 50	200 00	
Little Narrows.					
Liverpool.....					
Lockeport.....	G. J. Locke .....	April 21, 1906..	30 00	100 00	
Louisburg.....	J. McDonald.....	Aug. 1, 1914..	693 00	200 00	493 00
Lower L'Ardoise.....	J. Townsend, Deputy .				
	See L'Ardoise.....	May 1, 1899..		150 00	
Lower Port Latour .....	See Port Latour.				
Lunenburg.....	J. Heckman .....	Oct. 1, 1909..	168 00	200 00	
Mabou.....	W. F. Rankin .....	Feb. 18, 1905..	Nil.	100 00	
Mahone Bay.....	A. Hyson.....	Feb. 18, 1908..	26 50	200 00	
Mainadieu.....					
McNairs Cove.....	R. McEchen.....	Mar. 8, 1875..	Nil.	150 00	
McKinnon Harbour.....	D. Y. McNeil.....	Oct. 1, 1909 ..	5 00	200 00	
Marble Mountain .....	D. McDonald.....	July 26, 1892..	Nil.	200 00	
Margaret Bay.....	See St. Margaret Bay				
Margaretville.....					
St. Margaret Bay.....	H. C. Garrison .....	Feb. 14, 1902..	Nil.	100 00	
Margaree.....	F. P. Chaisson.....	March 6, 1909..	Nil.	100 00	
Marie Joseph .....	Chas. A. Dixon.....	Feb. 2, 1907..	1 00	100 00	
Merigomish.....	T. B. Olding.....	March 11, 1910..	Nil.	200 00	
Meteghan Harbour.....	Capt. J. McLair.....	Oct 8, 1906 ..	9 50	100 00	
Meteghan River .....	L. A. Comeau.....	June 1, 1897..		100 00	
Middle South Harbour...	(See Lunenburg)....				
Mills Harbour .....					
Musquodoboit.....	T. Williams.....	May 31, 1905..	4 50	100 00	
New Haven.....	H. A. McLeod.....	Aug. 17, 1889..	Nil.	100 00	
Neil Harbour.....	R. Payne.....	July 15, 1905..	2 00	100 00	Nil.
New Campbellton.....	(See Bras D'Or)....				
Noel .....	J. A. Hines.....	Dec. 29, 1914..	Nil.	200 00	
Northeast Harbour.....	(See Cape Negro) ..				
Northport .....	J. Davis .....	Dec. 21, 1903 ..	4 00	100 00	Nil.
North Sydney .....	R. McDonald.....	Jan. 9, 1915..	Nil.	600 00	
North West Cove.....	A. Setter.....	May 22, 1915..	0 50	200 00	
Orangedale.....	J. A. Martin.....	July 3, 1914..		100 00	
Ostrea Lake .....	(See Musquodoboit)...				
Parrsboro.....	W. R. Huntley.....	May 8, 1912..	Nil.	300 00	
Petitdegrat .....	E. Bois .....	Feb. 9, 1912..	11 00	200 00	
Petite Rivière Bridge..	J. N. Parks.....	April 27, 1858..	Nil.	100 00	
Plaster Harbour.....					
Port George .....	C. B. Weaver.....	May 1, 1877..		150 00	
" Greville.....	A. Graham.....	April 27, 1909..	29 50	200 00	
" Hawkesbury.....	J. Launcy .....	June 2, 1909..	89 50	200 00	
" Hastings .....	G. L. McLean.....	Feb. 15, 1908..	72 50	200 00	
" Hood .....	J. H. Murphy, jr....	July 9, 1875..		200 00	
" Latour.....	Wm. Sholds.....	Feb. 15, 1898..	3 50	200 00	



## SESSIONAL PAPER No. 21

LIST OF HARBOURS AND HARBOURMASTERS.—*Continued.*

Name of Port.	Harbour Master.	Appointment.	Gross Collections.	Remuneration.	Net
			\$ cts.	\$ cts.	\$ cts.
<i>Nova Scotia—Concl.</i>					
Port Lorne.....	F. Beardsley.....	June 9, 1897..	1 00	200 00	
" Maitland.....	J. W. Raymond.....	Feb. 20, 1914..	1 60	200 00	
" Bevis.....	(See Big Harbour).....				
" Morien.....	H. McDonald.....	March 3, 1879..	4 00	400 00	
" Mulgrave.....	Jos. Moore.....	Jan. 20, 1912..	29 50	200 00	
" Medway.....	J. Hopkins.....	Feb. 13, 1903..	8 00	200 00	
" Phillip.....					
" Wade.....	A. Holmes.....	Dec. 10, 1912..	8 50	200 00	
Pubnico.....	P. Belliveau.....	Nov. 25, 1911..	28 00	100 00	
Pugwash.....	P. Stewart.....	March 16, 1912..	39 50	100 00	
Queensport.....	A. Carr.....	Feb. 20, 1914..	14 00	100 00	
Ritcey's Cove.....	(See Riverport).....				
River Bourgeois.....	E. C. Bouchie.....	April 9, 1886..	3 50	100 00	
	D. Fougere, deputy.....	Aug. 12, 1889..			
River Hebert.....	W. Y. Theal.....	July 24, 1905..	5 50	100 00	
River John.....	H. Campbell.....	June 1, 1891..	Nil.	100 00	
Riverport.....	D. Ritcey.....	Feb. 26, 1915..		100 00	
St. Ann Bay.....	D. McAskill.....	May 2, 1913..	8 00	200 00	
St. Mary River.....	S. E. Pride.....	March 20, 1914..	8 00	200 00	
St. Peter.....	P. McNeil.....	Sept. 17, 1883..	8 50	200 00	
St. Ann Harbour.....	A. McLeod.....	April 16, 1909..	Nil.	200 00	
Sambro.....	H. W. Smith.....	Feb. 18, 1913..	13 50	200 00	
Sanford.....	H. Bourgoyne.....	Feb. 18, 1915..	Nil.	200 00	Nil
Sheet Harbour.....					
Shelbourne.....	M. Jordan.....	May 13, 1912..	156 50	200 00	
Sherbrooke.....	(See St. Marys River).....				
Ship Harbour.....	H. Siteman.....	Feb. 22, 1911..	2 00	100 00	
Sonora.....	(See St. Marys River).....				
South Bar.....	(See Victoria Pier).....				
Southwest Cove.....	(See Northwest Cove).....				
Spencers Island.....	B. McLellan.....	May 22, 1899..	16 50	100 00	
Sydney.....	(See International and Victoria Piers and Glasgow.)				
Tangier.....	A. Mason.....	July 19, 1912..	5 00	200 00	
Tenny Cape.....	W. Stephens, sr.....	Sept. 16, 1912..	Nil.	200 00	
Tatamagouche.....	Win. Reilly.....	June 1, 1900..	2 00	200 00	
Tidnish.....	R. B. Davidson.....	Feb. 19, 1910..	Nil.	100 00	
Tiverton.....	J. Blackford.....	April 3, 1900..	6 75	100 00	
Torbay.....	I. Fougere.....	April 25, 1903..	12 50	200 00	
Tracadie Grand.....	J. J. McAlay.....	April 18, 1910..		200 00	
Tusket.....	C. Doucette.....	Nov. 21, 1902..	2 50	100 00	
Tusket Wedge.....	(See Wedgeport.).....				
Upper L'Ardoise.....	(See L'Ardoise.).....				
Upper Port Latour.....	(See Port Latour).....				
Victoria Pier.....					
Wallace.....	J. D. Patton.....	Feb. 14, 1898..	3 40	100 00	
Washabuck.....	(See Bras D'or.) (c).....				
West Arichat.....	L. Forest.....	May 25, 1910..	Nil.	100 00	
Walton.....	J. W. Weir.....	Nov. 25, 1911..	30 50	200 00	
Wedgeport.....	H. A. LeBlanc.....	March 3, 1911..		100 00	
West Bay.....					
Westport.....	W. B. Welch.....	Dec. 21, 1912..	38 00	100 00	
	A. Dakin, Deputy.....	Mar. 30, 1914..			
Weymouth.....	A. Beaton.....	March 11, 1912..	35 00	200 00	
West River.....	(See Sheet Harbour).....				
Whitehead.....	L. Munroe.....	Feb. 8, 1909..	Nil.	200 00	
Whitehaven.....	(See Whitehead).....				
Whycocomagh.....	N. Matheson.....	July 6, 1909..	"	100 00	
Windsor.....	C. W. Baird.....	April 10, 1912..	163 50	300 00	
Wolfville.....	J. L. Franklin.....	Aug. 16, 1901..	1 00	100 00	
Woods Harbour.....	G. Nickerson.....	Nov. 27, 1913..	11 00	200 00	
Yarmouth.....	R. M. Ferguson.....	April 27, 1912..	Nil.	250 00	



LIST OF HARBOURS AND HARBOURMASTERS.—*Concluded.*

Name of Port.	Harbour Master.	Date of Appointment.	Gross Collections.	Remuneration.	Net Collections.
<i>Prince Edward Island.</i>			\$ cts.	\$ cts.	\$ cts.
Alberton.....	A. Kinch.....	July 19, 1912..	Nil.	200 00	Nil.
Bay Fortune.....	J. R. Coffin.....	April 29, 1878..	"	200 00	
Bell River.....	M. F. Riley.....	Sept. 18, 1914..	"	200 00	
Brudenell.....	J. A. Gordon.....	Oct. 26, 1905..	"	200 00	
Cape Traverse.....					
Cardigan River, including Cardigan Bridge...	H. McDonald.....	July 2, 1878..	"	200 00	
Cardigan River to Mitchell River .....	(See Upper Cardigan River).....				
Cove Head.....	M. Keilley.....	April 25, 1904..	"	100 00	
Charlottetown and Hillsboro River.....	J. Ryan.....	May 3, 1912..	165 50	400 00	
Crapaud .....	W. Myers.....	June 17, 1874..	2 00	200 00	
Egmont Bay.....	H. Reeves.....	May 16, 1913..	1 50	200 00	
Georgetown.....	S. J. Hemphill.....	Dec. 17, 1912..	15 50	200 00	
Grand River.....	I. Howlett.....	Aug. 26, 1912..	Nil.	200 00	
Hillsboro River. ....	(See Charlottetown).....				
Malpeque.....					
Miminegash.....	M. D. Lacey.....	Jan. 30, 1914..	3 00	100 00	
Montague Bridge.....	D. T. Stewart (acting).....	Dec. 2, 1913..		200 00	
Murray Harbour .....	G. Billard.....	Oct. 30, 1913..	9 50	200 00	
Murray River.....					
New London.....	J. Delaney.....	April 28, 1914..	1 50	200 00	
Pinette.....	J. D. McDonald.....	Oct. 22, 1903..	Nil.	100 00	
Port Hill.....					
Pownal.....	M. Haley.....	Mar. 30, 1897..	Nil.	100 00	
Rollo Bay.....					
Rustico, North.....	T. Pineau .....	June 9, 1914..	100 00	200 00	
St. Peter's Bay .....	G. Barry.....	May 3, 1901..	Nil.	200 00	
Souris, E. and W. ....	J. Tierney.....	May 15, 1905..	42 50	200 00	
Summerside.....	J. Matheson .....	Feb. 8, 1907..	43 50	200 00	
Tignish.....					
Tracadie, Grand.....	J. McAulay .....	April 18, 1910..	Nil.	200 00	
Tryon .....					
Upper Cardigan River. ....	D. McKenzie.....	June 14, 1913..		100 00	
Vernon River Bridge.....	J. Finlay.....	Oct. 9, 1884..	1 00	200 00	
West River.. ....					
Wood Islands.....	Jas. Young.....	May 22, 1899..	50	100 00	
<i>British Columbia.</i>					
Burrard Inlet. ....					
Chemainus.. ....	L. G. Hill .....	April 24, 1906..	21 00	200 00	Nil.
Comox .....	B. S. Abrams .....	June 12, 1914..	315 50	200 00	115 50
Departure Bay.....	(See Nanaimo.).....				
Esquimalt .....	(See Victoria.) .....				
Ladysmith.....	L. E. Lowe.....	June 26, 1912..	61 00	200 00	
Nanaimo and Departure Bay .....	J. S. Knarston.....	Oct. 26, 1905 ..	414 00	500 00	Nil.
Snug Harbour.....	J. W. Davies.....	July 19, 1911..	Nil.	200 00	
Victoria & Esquimalt....	C. E. Clarke.. ....	Nov. 3, 1894..	701 50	600 00	
Prince Rupert .....	E. McCoskrie.. ....	Mar. 16, 1912..	211 00	600 00	
Quadra.....					
Union .....	(See Comox.).....				



## SESSIONAL PAPER No. 21

STATEMENT of Expenditure of Marine Branch from Confederation to March 31, 1915.

	\$	c.		\$	c.
1868.....	371,070	56	1892.....	861,426	80
1869.....	360,899	90	1893.....	898,720	03
1870.....	367,189	11	1894.....	905,654	34
1871.....	389,537	12	1895.....	895,828	28
1872.....	518,958	49	1896.....	793,634	49
1873.....	706,817	92	1897.....	867,772	90
1874.....	845,150	90	1898.....	856,192	50
1875.....	844,586	09	1899.....	1,102,601	90
1876.....	970,146	27	1900.....	982,561	97
1877.....	820,054	38	1901.....	1,029,925	32
1878.....	786,156	23	1902.....	1,501,618	88
1879.....	755,359	47	1903.....	1,671,494	77
1880.....	723,390	89	1904.....	2,150,940	31
1881.....	761,730	62	1905.....	4,747,722	81
1882.....	774,831	53	1906.....	5,066,252	66
1883.....	825,010	82	1907.....	3,637,599	82
1884.....	927,241	61	1908.....	5,374,774	18
1885.....	1,129,901	14	1909.....	4,692,806	85
1886.....	980,120	59	1910.....	4,197,420	24
1887.....	917,557	31	1911-12.....	4,911,140	67
1888.....	883,250	85	1912-13.....	5,213,223	55
1889.....	1,023,801	34	1913-14.....	5,828,027	37
1890.....	807,417	53	1914-15.....	6,202,908	16
1891.....	885,410	11			



## APPENDIX No. 6.

## METEOROLOGICAL SERVICE.

A. JOHNSTON, Esq.,  
Deputy Minister of Marine.

TORONTO. June, 1915.

SIR,—I have the honour to submit the forty-fourth annual report of the Meteorological Service for the fiscal year ended March 31, 1915, with Appendices A, B, and C, reports of the observatories at Quebec city, Que.; St. John, N.B.; and Victoria, B.C.

Reports have been received at the central office from 532 stations, including telegraph reporting stations, climatological and storm signal stations. For various duties in connection with the service, 363 persons, chiefly observers, have been in receipt of remuneration, and of this number 35 were employed in the central office.

The work performed in the central office continues to increase steadily owing to various causes, among which are the following:—

The number of reporting stations in the Dominion has been much augmented by the addition of stations opened at the demonstration farms of the Department of Agriculture, and rainfall stations opened to provide data for the many industrial and engineering companies interested in the flow of streams and water-power generally.

The increase in stations means a corresponding increase in the size of monthly reviews and annual reports, and as nearly all computations of mean values are performed in the central office, it follows naturally that the office work is continually increasing. Then, again, the number of daily maps sent out has increased to 328, and the more general dissemination of forecasts in all the provinces calls for additional work in connection therewith.

## THE METEOROLOGICAL STAFF.

During the greater part of the year the forecast branch of the office has been undermanned, owing to the fact that about the middle of August, 1914, Major W. D. Allen of this branch, left on active service with the overseas contingent, and in November, Mr. P. F. Morley of the same branch resigned to accept a more remunerative position in the United States. The departure of these two officials has rendered it necessary for the director and assistant director to resume full forecast duties, as there is now but one other trained official available for this work.

## FORECASTS AND STORM WARNINGS.

Bi-daily synchronous weather charts have been compiled on every day throughout the year, Sundays and holidays included, based on telegraphic reports from thirty-eight stations in Canada, 100 in the United States, four in Newfoundland, and one in Bermuda. Three of our most useful stations, Sable island and Belle isle in the Atlantic, and Triangle island in the Pacific, ceased reporting by wireless at the outbreak of the war. These charts have formed the basis of the forecasts and storm warnings which have been issued from Toronto for all the provinces, exclusive of British Colum-



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bia, where at Victoria a somewhat less comprehensive chart is prepared for forecasting in that province. The daily weather chart showing the meteorological conditions over the northern hemisphere was discontinued on the outbreak of the war, and its loss is to be greatly deplored, as it was undoubtedly a very great assistance in forecasting the paths of storms.

Storm warnings have been issued to 112 display stations in Canada, and of 2,037 warnings issued, 88 per cent were verified by subsequent winds; 323 warnings were received late, 204 owing to issue, and 119 owing to telegraphic delays. Forecasts have been telegraphed twice daily to Newfoundland, and warnings of expected storms were issued on thirty-four occasions.

Forecasts have also been telephoned twice daily to the radiotelegraph station at Toronto island, whence they are transmitted to the various wireless stations on the Great Lakes. Forecasts and storm warnings have also been telegraphed to the radiotelegraph stations at Montreal, Fame point and Halifax, and to the Superintendent of the Signal Service, Quebec, and from these points have been disseminated broadcast to all vessels equipped with wireless apparatus. Arrangements have also been made within the year whereby copies of the daily bulletin supplied to most of the larger towns and villages in Ontario are handed to the Central Telephone exchange office, the Bell Telephone having agreed to furnish the same to any of their subscribers who may ask for them.

## PHENOLOGICAL OBSERVATIONS.

A valuable work performed at the central office has been the collection of phenological statistics by observers and others connected with the meteorological service, and this has been done under the supervision of Mr. F. F. Payne.

## OUTSIDE STATIONS.

At first-order stations in the Dominion there have been no new appointments, but at Edmonton, both Observer Holmden and his assistant, Clarke, have left on active service, and the work is being carried on by a relieving officer, Mr. W. H. Owen; this has, of course, meant the curtailment of some of the station work. Also at Victoria, the absence of Assistant Langton on militia service for six months has caused some little inconvenience.



The new observatories at St. John and Victoria were completed within the year, and the reports of the local superintendents are contained in Appendices B and C. Storm signal stations have been opened at Entrance island, British Columbia, Long point, Lake Erie, and Port McNicoll, Ontario, and the following climatological stations have been opened:—

Station.	Class.	Agent.
Gateway, B.C.....	11	A. H. Roberts.
Little River, Lazo, B.C.....	11	Birtrand Vogel.
Kelowna (Bankhead), B C.....	11	L. E. Taylor.
Welcome Harbour, B.C.....	11	E. O. Rietchel.
Strathcona Park, B.C.....	11	R. E. Thompson.
Entrance Island, B.C.....	1	Wm. E. Morrissey.
Ucluelet, B.C.....	11	E. Lee.
New Hazelton, B.C.....	11	Stanley Reeve.
Sandwich, B.C.....	111	Eric Duncan.
Queen Charlotte City, B.C.....	111	W. N. Giegerich.
Glenema, B.C.....	11	W. F. Smith.
Edith Lake, B.C.....	11	C. R. Mackenzie.
Twin Lake, B.C.....	111	Jas. A. Nixon.
Baynes Lake, B.C.....	11	Norman F. Saunders.
Mill Bay, B.C.....	11	W. D. Noble.
Olds, Alberta.....	11	F. S. Grisdale.
Canmore, Alberta.....	11	T. B. Williams.
Kinnaird, Alberta.....	111	Wm. Westlin.
Hardisty, Alberta.....	11	N. Terry.
Empress, Alberta.....	11	H. C. Shepherd.
Provost, Alberta.....	11	H. E. McFaul.
Bassano, Alberta.....	11	A. W. Perelstrous.
Rosedale, Alberta.....	11	Kenneth Moodie.
Mountain Park, Alberta.....	11	T. A. Millar.
Halcyonia, Saskatchewan.....	11	Wm. C. McCheane.
Stonyview, Saskatchewan.....	11	V. R. Broughton.
Macdowall, Saskatchewan.....	111	Jas. Riehle.
Fort à la Corne, Saskatchewan.....	111	W. J. Robinson.
Gladwin, Saskatchewan.....	111	Jas. L. Dodge.
Caron, Saskatchewan.....	11	E. Billingham.
Outlook, Saskatchewan.....	11	C. McEown.
Hamiota, Manitoba.....	11	Charles Penny.
Selkirk, Manitoba.....	11	C. P. Paulson.
Turbine, Ontario.....	11	Canadian Copper Co.
Sudbury, Ontario.....	111	W. W. Stull.
Queensboro, Ontario.....	11	Miss. M. A. Thompson.
Long Lake, Ontario.....	111	W. W. Fox.
Atikokan, Ontario.....	11	F. J. Schieder.
Berlin, Ontario.....	11	Daniel T. Heisey.
Long Point, Ontario.....	11	S. B. Cook.
Mine Centre, Ontario.....	11	S. Bliss.
Lac Seul, Ontario.....	111	Chas. H. M. Gordon.
White Fish, Ontario.....	111	Paul B. Sammons.
Frater, Ontario.....	11	T. W. Cain.
Vineland, Ontario.....	11	F. M. Clement.
Steep Hill Falls, Ontario.....	111	C. Long.
Sturgeon Falls, Ontario.....	11	W. J. Hussey.
Sorel, Québec.....	11	Bro. Northelm.
Mistassini, Québec.....	11	J. W. Anderson.
Pointe Madeleine, Quebec.....	111	Brume Grand Mont.
Natashquan, Quebec.....	11	Father L. Garnier.
Lennoxville, Quebec.....	11	J. A. McClary.
Williamsburg, New Brunswick.....	11	D. S. Peacock.
Annapolis, Nova Scotia.....	11	Thos. H. H. Fortier.
Middleton, Nova Scotia.....	11	Capt. F. A. Brown.
Berwick, Nova Scotia.....	11	A. E. Adams.
Bridgetown, Nova Scotia.....	11	Geo. E. Sanders.
Digby.....	11	Miss. H. Jameson.



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## INSPECTION DIVISION.

Officers of the Inspection division visited the following places during the fiscal year, giving instructions, adjusting instruments, selecting sites, and performing such work as comes under the heading of "inspection": Woodstock, Southampton, Bermuda, Kingston, Prinyer, Deseronto, Cobourg, Port Hope, Port Dover, Long Point (Lake Erie), St. Catharines, Welland, Port Colborne, Brandon, Calgary, Entrance Island, Fort William, Kamloops, Medicine Hat, Minnedosa, Moosejaw, Nanaimo, Port Arthur, Prince Albert, Qu'Appelle, Swift Current, The Pas, Vancouver, Victoria, Winnipeg, White River, Dawson, Atlin, Carcross, Prince Rupert, Portage la Prairie, Yorkton, Saskatoon, Edmonton, Grouard, Stonecliffe, Cochrane, Montreal, Dalhousie, Bonaventure River, Paspebiac, St. Godfroy, Pt. Daniel, l'Anse aux Gascons, Newport Point, St. Adelaide de Pabos, Grand River, Cape Cove, l'Anse au Beaufile, Gaspé, Perce, Corner fo the Beach Southwest Pt. Anticosti, Mont Louis, Fox River, Father Point, Chatham, Pt. Escuminac, Charlottetown, Pictou, Halifax, Carlton Point, Athabaska, Landing, Fort McMurray, Fort Chipewyan, Fort Smith, Fort Resolution, Hay River, Fort Simpson, Fort Normana, Fort Good Hope, Fort McPherson, Fort Rae, Barrie, Midland, Port McNicoll, and Coldwater.

## TIME SERVICE.

During the year ended March 31, 1915, fifty-six determinations for time were made by transit of stars in the meridian with the 3-inch Troughton and Simms transit instrument. The position of the stars were those given in the American Ephemeris. The usual methods for determining the collimation error of the transit instrument by reversal on Polaris and by transits in reverse positions of the axis were followed. The stability and condition of the instrument continues very satisfactory.

The sidereal and mean-time clocks are also performing well and keeping very good uniform rates.

Owing to the war and the uncertain conditions of ocean navigation resulting therefrom the delivery of the "Magneta Clock" from Zurich, Switzerland, was delayed until March, 1915, when immediate steps were taken to put it in position and install the synchronizing mechanism.

The usual time exchanges between Toronto and Quebec, Montreal and St. John, N.B., have been made, being recorded on the chronographs at Toronto, Montreal and St. John. The errors of the clocks have been computed from the latest observations.

The 11.55 a.m. signals have been given over the fire alarm system.

Time has been given weekly to the magnetic observatory at Agincourt, and daily to the Canadian Northern railway, running out of Toronto.

Numerous chronometers and watches have been rated, and also private inquiries for time have begun to assume large proportions.



The following table will show the differences between the times at the several observatories and that at Toronto. The sign + indicates slow of Toronto.

Date.	Montreal.	Quebec.	St. John.
1914.	Seconds.	Seconds.	Seconds.
April 17.....	-1.68	+0.37	-0.69
May 8.....	-1.48	-0.92	-0.56
May 22.....	-1.58	+0.28	+0.07
June 25.....	-1.64	-0.47	-1.14
August 21.....	-1.94	-0.53	.....
September 11.....	.....	+0.77	.....
September 25.....	+0.07	+0.10	-0.57
October 16.....	-1.31	-0.22	-0.64
October 30.....	+0.34	-0.81	+0.15
November 13.....	-0.33	+1.39	-0.69
December 11.....	-0.74	+0.57	-0.02
1915.			
January 15.....	+0.45	+1.14	+0.78
January 29.....	.....	-1.10	.....
February 26.....	-0.79	.....	.....
March 19.....	+0.56	+0.77	+0.27

SOLAR OBSERVATIONS.

During the year April 1, 1914, to March 31, 1915, the sun was observed on 123 days. On eighty-three of these, maps were made showing the position of the spots then seen. As in former years, the NSE. and W. points were marked, the sun's axis and solar equator plotted from the positions tabulated in the American ephemeris. On April 3 a rather large disturbed area was observed north of the equator. This same group was also seen on the 6th, considerably developed, and again on the 9th, near the NW. limb. A group of small spots was seen in the SE. quadrant which developed into a beautiful display of penumbral spots of moderate size. On August 17 and following days a very large round penumbral spot was observed, and proved one of the largest single spots seen for years. It was again seen on September 10. On January 4, 1915, a fairly large group was seen north of the equator, and it disappeared over the NW. limb January 12. This group presented a beautiful appearance. On March 1 a trail of fairly large penumbral spots stretched across the sun south of the equator and parallel with it. At the end of the year March 31, 1915, a very large spot followed by a disturbed area of smaller spots and faculae appeared over the NE. limb. Photographs were taken of the principal large spots and groups on June 17, August 21, September 10, 12, 14, 15, 16, February 12 and March 31. The sun was observed to be free of spots on April 14, May 6, 8, 9, 14, 18, 20, 28, 30, June 1, 5, 23, 26, July 15, 21, 29, 30, August 1, 5, 6, 8, 12, 26, 29, 31, October 2, 5, 7, 8, 9, November 5, 16, January 26, 27.

MAGNETIC OBSERVATIONS.

The photographic magnetic instruments at Agincourt have been kept in continuous operation throughout the year. In August, 1914, a photographic vertical force instrument was added to the equipment, so that now we have a complete record of all the magnetic elements. The zeros of these recording instruments are determined by absolute observations, taken bi-weekly for declination and vertical force, and bi-monthly for horizontal force.

The westerly declination has changed from 6° 22.4 in March, 1914, to 6° 27.2 in March, 1915, an increase of 4.8. The horizontal force has decreased from 0.161007



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dynes to 0.160387, and the inclination has increased from  $74^{\circ} 41'.7$  to  $74^{\circ} 43'.3$ . In March, 1915, the vertical force was 0.586729 dynes.

Magnetic disturbances were of infrequent occurrence during the early part of the year, but commencing in June there were very few days in which some disturbing forces were not in operation. The greatest variation in declination occurred during the magnetic storm of the 20th and 21st of March, 1915, amounting to 53.4. In horizontal force, however, the greatest range occurred during the storm of the 27th and 28th of September, 1914, the variation amounting to 0.00340 dynes.

The mean diurnal range from the hourly ordinates of declination varied from a maximum of  $13' 2$  in August, 1914, to a minimum of  $5'.3$  in November, 1914, whilst that of horizontal force varied from a maximum of 0.00042 dynes in August, 1914, to a minimum of 0.00020 dynes in February, 1915. The ranges in vertical force for January, February and March, 1915, have been 0.00007 dynes, 0.00008 dynes, and 0.00014 dynes.

During the year, the compass attachments to 191 surveyors transits were adjusted and compared with the Agincourt standard declinometer, and the index corrections were determined and supplied to the Surveyor General. Assistance was given to Mr. Purser and Mr. Wight of the Department of the Interior in standardizing their magnetic instruments both before and after their field work.

Assistance was also given to Mr. French of the Dominion Observatory in comparing his instruments with the Agincourt standards, both before and after his field work.

The computing and compiling of magnetic data from the observatory records since 1872 is being carried on by Mr. W. E. W. Jackson.

## PHYSICS BRANCH.

The exploration of the upper atmosphere has not been carried on with the same regularity as during the previous three years, as from the outbreak of the war it was found impossible to obtain the necessary balloons from Europe. Since February, however, the Sterling Rubber Company, of Guelph, has been manufacturing balloons which are proving most satisfactory, and we are now in a position to carry on the investigation at regular intervals.

In all, eighteen balloons were sent up in 1914, and thirteen were recovered. In 1915, to date, six have been sent up and four have been recovered. The following tables gives a summary of records not published in the last report:—

Date.	A	B	C	D	E	F	G
1914.							
Feb. 1 . . . . .	5.3†	-60.7	9.4	-68.8	E.	143	S.84 E.
Feb. 4 . . . . .	5.1	-65.9	6.6	-55.3	E.	184	N.70 E.
March 4 . . . . .	6.3	-75.1	9.1	-71.5	E.	152	S.82 E.
March 5 . . . . .	6.2	-78.7	8.5	-63.4	W.	87	N.35 E.
May 7 . . . . .	6.2	-72.4	8.3	-68.8	W.	47	N.67 E.
June 4 . . . . .	8.7	-88.8	9.6	-79.6	SW.	239	S.66 E.
July 1 . . . . .	*	—	7.2	-66.1	N.	134	N.87 E.
Aug. 5 . . . . .	9.7	-74.2	10.8	-65.2	W.	20	S.75 E.
1915.							
January 27 . . . . .	5.6	-68.0	6.7	-57.1	E.	104	N.48 E.
January 28 . . . . .	—*	—	4.5	-47.2	S.	78	N.88 E.
March 11 . . . . .	5.3	-6.03	8.3	-59.8	SW.	105	S.38 E.
April 10 . . . . .	6.9	-73.3	11.3	-69.7	SE.	140	N.53 E.



At a meeting of the International Meteorological Commission, held in 1913, it was decided to carry on a systematic survey of the atmosphere over the polar regions during the years that Captain Amundsen was attempting to reach the North Pole, and the Stefansson expedition was likewise in the arctic regions. During last summer Mr. J. Patterson, of the central office, was assigned the duty of instructing certain observers in the Far North in taking the observations which this survey would entail and which was to consist of sending off small balloons and following and measuring their flight by means of theodolites. Mr. Patterson, during his journey to the mouth of the Mackenzie and return, instructed the various observers chosen for this special work, and also inspected the many meteorological stations lying between Edmonton and the Arctic sea. It is to be regretted that the war will probably lead to a lack of that international co-operation which alone could make this investigation effective.

#### SEISMOLOGY.

The Milne seismographs at Toronto and Victoria have continued in operation throughout the year.

On April 30, 1914, the Victoria instrument was removed to the basement of the new observatory, the boom being now approximately 222 feet above sea-level. The number of earth tremors recorded at both stations during the year was one-third greater than is usually recorded, Toronto showing 108 and Victoria 110.

Five of the movements were comparatively large, and occurred on April 11, August 4, October 1, November 24 and January 13, the last-named being caused by the disastrous Italian earthquake of that date. The preliminary tremors were recorded in Toronto at 7h 12m 12s G.M.T. and continued for one and twenty-two minutes. The first waves reached Victoria at 7h 15m 48s; the duration of the disturbance was one hour and forty-two minutes. The largest range of motion was 2.3 millimetres at Toronto and 2.0 millimetres at Victoria. The director of the Rome Observatory, Italy, gives the beginning of this earthquake, recorded at Rome, as 6h 52m 55s.

We continue to send duplicates for all our seismological tabulations to a number of central seismological institutions throughout the world, this data being used conjointly with that from other countries for the purpose of seismic investigation.

Early in the year the seismological equipment of the new observatory at Victoria was augmented by the following instruments:—

Two Bosch-Omori seismographs registering on smoked paper both N-S and E-W components.

Two Bosch photographic seismographs registering N-S and E-W components.

One Vertical seismograph, Wiechert type, smoked paper registration, and made by Spindler & Hoyer, Gottingen.

The results obtained with such a complete equipment should prove of great value.

More recently a small observatory for meteorological work and a time service was completed and occupied in St. John, N.B., and here again the work will in future be carried on under most favourable conditions.

#### AGRICULTURAL METEOROLOGY.

Work in the section devoted to agricultural meteorology began in February, 1914. An answer to the question, "what has already been accomplished in this new science?" was first sought. The literature of the subject was investigated; a reference library has been started, and a bibliography on cards prepared as an index to useful reading



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matter. Letters were written to men engaged in investigating "weather and crops," and helpful suggestions received from them. The Ontario Agricultural College and the Central Experimental Farm were visited in order to get in touch with phases of the subject in Canada.

Several methods of attack on the problem were tested; for example, climatic maps, mathematical correlations between crop yields and meteorological averages, and detailed chart studies from weather data and crop notes.

The need of more detailed crop notes was continuously felt. Accordingly, through the courteous co-operation of the Dominion Experimental Farms system, an experiment with field plots of spring wheat was started at fourteen stations well distributed over Canada. In March, 1915, forms based on Russian and United States models were sent to the experimental farms, so that accurate crop notes may be kept. At the close of the season these will be studied in conjunction with the figures of precipitation, sunshine and temperature for each station. It is hoped to get at facts which may yield practical results, and as the experiment proves its value, plans and equipment may be extended and perfected from year to year.

Respectfully submitted,

R. F. STUPART,

*Director.*



NUMBER of Predictions and Percentage of Fulfilment in each District in each month for the year April 1, 1914 to March 31, 1915.

Month of year.	Alberta.					Saskatchewan.					Manitoba.					Lake Superior.				
	Number of predictions.	Number fully verified.	Number partly verified.	Number not verified.	Percentage verified.	Number of predictions.	Number fully verified.	Number partly verified.	Number not verified.	Percentage verified.	Number of predictions.	Number fully verified.	Number partly verified.	Number not verified.	Percentage verified.	Number of predictions.	Number fully verified.	Number partly verified.	Number not verified.	Percentage verified.
1914.																				
April .....	80	67	8	5	88.7	82	63	12	7	84.1	81	64	7	10	83.3	105	77	20	8	82.9
May .....	80	61	14	5	85.0	84	68	11	5	87.5	84	68	13	3	88.7	123	95	23	5	86.6
June .....	75	52	19	4	82.0	69	55	12	2	88.4	71	51	9	11	73.2	121	81	33	7	80.6
July .....	80	54	22	4	81.3	81	62	15	4	85.8	81	59	19	3	84.6	121	87	27	7	83.1
August .....	77	50	19	8	77.3	80	58	21	1	85.6	80	51	27	2	80.6	114	70	38	6	78.1
September .....	76	61	13	2	88.8	76	66	6	4	90.8	75	61	8	6	86.7	116	82	22	12	80.1
October .....	87	72	11	4	89.1	86	72	11	3	90.1	86	76	5	5	91.3	118	71	27	20	71.6
November .....	75	61	8	6	86.6	77	63	11	3	88.9	77	66	6	5	89.6	114	89	14	11	84.2
December .....	78	64	11	3	89.1	82	65	13	4	87.2	82	69	9	4	89.7	113	98	9	6	90.7
1915.																				
January .....	84	64	10	10	82.1	88	72	11	5	87.8	89	76	9	4	90.5	101	74	15	12	80.7
February .....	72	58	10	4	87.5	73	60	10	2	90.3	73	67	4	2	94.5	87	77	9	1	93.7
March .....	82	72	8	2	92.7	83	69	10	3	90.4	82	69	10	3	90.4	100	85	12	3	91.0
Totals.....	946	736	153	57	85.9	954	773	143	43	88.0	961	777	126	58	87.4	1333	986	243	98	83.3



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Number of Predictions and Percentage of Fulfilment in each District in each month for the year April 1, 1914 to March 31, 1915—  
Continued.

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Month of Year.	Lower Lakes.					Georgian Bay.					Ottawa Valley.				
	No. of predictions.	No. fully verified.	No. partly verified.	No. not verified.	Percentage verified.	No. of predictions.	No. fully verified.	No. partly verified.	No. not verified.	Percentage verified.	No. of predictions.	No. fully verified.	No. partly verified.	No. not verified.	Percentage verified.
1914.	April .....	114	83	21	22.0	113	75	23	15	76.5	98	64	27	7	79.1
	May .....	125	110	13	93.2	125	100	21	4	88.1	99	80	11	8	86.4
	June .....	116	76	34	80.2	116	77	32	1	82.2	88	58	18	12	77.3
	July .....	117	91	21	86.8	118	90	25	3	86.9	99	76	16	7	84.8
	August .....	124	95	24	86.3	125	86	32	1	81.6	105	78	25	2	86.2
	September .....	119	102	11	90.3	120	101	11	8	88.8	98	82	11	5	89.3
	October .....	123	104	15	90.7	123	96	19	8	85.8	111	87	15	9	85.1
	November .....	119	91	20	84.9	119	89	25	5	85.7	97	79	10	8	86.6
	December .....	118	99	13	89.4	120	103	10	7	90.0	112	91	13	8	87.1
1915.	January .....	113	89	17	86.5	112	88	17	7	86.1	104	74	15	15	77.4
	February .....	102	86	14	91.1	103	92	7	4	92.7	88	61	14	13	77.3
	March .....	125	115	8	95.2	125	111	12	2	93.6	116	93	17	6	87.5
	Totals .....	1415	1141	211	88.1	1419	1108	234	77	86.3	1215	923	192	100	83.8



NUMBER of Predictions and Percentage of Fulfilment in each District in each month for the year April 1, 1914 to March 31, 1915—  
*Continued.*

Month of year.	Maritime West.					Maritime East.					Totals.				
	No. of predictions.	No. fully verified.	No. partly verified.	No. not verified.	Percentage verified.	No. of predictions.	No. fully verified.	No. partly verified.	No. not verified.	Percentage verified.	No. of predictions.	No. fully verified.	No. partly verified.	No. not verified.	Percentage verified.
1914.															
April.....	116	84	25	7	83.2	115	81	25	9	81.3	1229	895	233	101	82.3
May.....	116	88	18	10	83.6	115	87	17	11	83.0	1281	992	201	88	85.3
June.....	118	84	27	7	82.6	118	85	27	6	83.5	1215	833	289	93	80.0
July.....	118	82	29	7	81.8	116	86	24	6	84.5	1262	932	264	66	84.3
August.....	111	76	30	5	82.0	111	75	32	4	82.0	1262	892	316	54	83.2
September.....	113	81	24	8	82.3	113	82	23	8	82.7	1226	973	168	85	86.2
October.....	121	85	21	15	78.9	121	92	18	11	83.5	1324	1004	207	113	83.6
November.....	111	92	15	4	89.6	109	87	13	9	85.8	1207	965	162	80	86.7
December.....	122	96	19	7	94.8	122	98	13	11	85.7	1293	1071	138	81	88.2
1915.															
January.....	118	90	21	7	85.1	117	90	20	7	85.5	1241	943	190	108	83.6
February.....	107	81	16	10	81.6	105	79	17	9	83.3	1058	848	144	66	87.0
March.....	127	104	16	7	88.2	126	86	29	11	79.8	1312	1082	175	65	88.4
Totals.....	1398	1043	261	94	83.9	1388	1028	258	102	83.4	14910	11430	2487	1003	85.0



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NUMBER of Predictions and Percentage of Fulfilment in each District in each month for the year April 1, 1914 to March 31, 1915—  
Continued.

Month of Year.	Upper St. Lawrence.					Lower St. Lawrence.					Gulf.				
	No. of predictions.	No. fully verified.	No. partly verified.	No. not verified.	Percentage verified.	No. of predictions.	No. fully verified.	No. partly verified.	No. partly verified.	Percentage verified.	No. of predictions.	No. fully verified.	No. partly verified.	No. not verified.	Percentage verified.
1914.															
April.....	98	70	22	6	82.6	113	81	13	14	79.6	111	86	25	3	86.4
May.....	99	77	15	7	85.5	115	82	22	11	80.9	116	76	23	17	75.4
June.....	88	59	21	8	76.0	113	76	28	9	79.6	122	79	29	14	76.6
July.....	99	79	13	7	86.4	114	86	23	5	85.5	118	80	30	8	80.5
August.....	105	81	21	3	87.1	113	81	27	5	88.6	127	91	20	6	86.3
September.....	98	84	10	4	90.8	108	82	15	11	82.9	111	89	14	11	84.2
October.....	111	89	16	6	87.4	119	83	19	17	77.7	118	77	30	11	78.0
November.....	97	52	8	6	88.7	104	79	18	7	84.6	108	87	13	8	86.6
December.....	113	97	9	7	89.8	113	93	8	12	85.8	118	98	11	9	87.7
1915.															
January.....	104	77	16	11	81.6	104	73	18	13	78.8	107	76	21	10	80.8
February.....	88	65	13	10	81.3	69	45	17	4	81.9	92	74	13	5	87.5
March.....	116	95	16	5	88.8	115	93	16	6	86.9	116	80	21	15	78.0
Totals.....	1216	925	180	80	83.5	1300	957	229	114	82.4	1360	993	250	117	82.2



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## APPENDIX A.

QUEBEC, May 14, 1915.

The Director, Meteorological Service,  
Toronto.

SIR,—I beg to submit my annual report for the year ended March 31, 1915.

The observations taken at the Quebec Observatory during the past year were the same as in previous years, including the records of self-registering instruments furnished to this observatory in 1914.

Two new instruments—a solar and a terrestrial thermometer—have been supplied to this station since my last report.

Navigation opened last year on April 25, and the time-ball has been working in a satisfactory manner until December 31, end of the navigation season. Certain repairs to the time-ball apparatus were then found necessary, and were performed during the course of this spring.

As mentioned in previous reports, the observatory buildings are not in good order, and would require some temporary repairs, pending decision about the erection of a new building.

I have the honour to be, sir,

Your obedient servant,

ARTHUR SMITH,  
*Director.*

## APPENDIX B.

METEOROLOGICAL SERVICE, ST. JOHN OBSERVATORY,  
ST. JOHN, N.B., July, 1915.

R. F. STUPART, Esq., F.R.S.C.,  
Director, Meteorological Service,  
Toronto, Ont.

SIR,—I have the honour to present the annual report on the Observatory at St. John for the fiscal year ending March 31, 1915.

## METEOROLOGICAL SERVICE.

The new observatory building on Douglas avenue was finally occupied at the close of last October. The grounds and building are proving admirably adapted for the requirements of the service, giving an unexcelled exposure for the outside instruments on the spacious lawn, where are exposed the wet and dry bulb, maximum and minimum thermometers and rain gauge, also the automatic recording thermograph, hygrograph and rain gauge. Provision is also being made for an instrument plot for the solar and terrestrial radiation instruments and sunshine recorder. The anemometer and wind vane have been given a free and unobstructed exposure on an iron framework some twenty feet above the tower and over twenty-five feet above the highest point of the main roof. The routine observation and record of the various meteorological elements were continued throughout the year without a break. During the period, moving observations were made at both the old and new sites. The anemograph records from the wind station at Point Lepreau continue to be sent here weekly, where they are tabulated and the analysis made. This station gives most useful and satisfactory results.



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## WEATHER BULLETIN.

The daily bulletin was promptly issued each weekday after receipt of the telegraphic message from the central office at Toronto. The prevailing conditions at coast and inland stations, synopses and forecasts, have been, as in the past, of great value to shippers, mariners, contractors, and interests depending upon the information given in the bulletin. It is distributed through the post, published in the afternoon papers and displayed in public places as heretofore reported. By courtesy of the New Brunswick Telephone Company, forecasts from Toronto are telephoned throughout the province and displayed on forms provided by the Meteorological service, greatly to the advantage of the public in localities not connected by telegraphic service. Local and outside shipping, contracting and commercial houses, transportation companies and others make frequent requests for statistical and other information from this office. In many cases settlement of claims wholly depends upon the records of our observations. The press obtain information when important storms occur, during periods of extremes, and items of interest to the public.

## DISPLAY OF STORM SIGNALS.

In addition to the display of storm signals from the signal mast on the Customs building here, messages are telephoned to the signal stations at Quaco lighthouse and Point Lepreau upon receipt of advice from the central office at Toronto.

## TIME SERVICE OF THE MARITIME PROVINCES.

All the instruments and apparatus connected with this service have been installed in the new building. The pier for the meridian telescope is substantially mounted on solid concrete with its base some six feet below the surface rock. The instrument is now decidedly stable in level and azimuth and not subject to the disturbances of the old site. The clocks are also mounted on solid piers free from the building and show much improvement in the steadiness of their rates. The Standard Sidereal is mounted in the constant temperature clock room practically under ground. A well was cut in the rock six feet below the basement (ten feet below the ground level), drained with field tile and walled with concrete to under side of clock room floor. This well was then lined with sheet lead and the pier for clock built inside, having a three by three feet base supporting the small pier carried above the floor. To this small pier the clock is firmly bolted. The room is double walled, having an air space of twenty inches on all sides and at the top. Naturally the clock room has very even and constant temperature, but arrangements to take care of the small temperature changes consist of a thermostat in the inner vault, connected by wire with an automatic gas regulator between the outer and inner walls. Since the clock was sealed and the air pressure inside its case reduced to 650 millimeters, not one stroke of the pump has been necessary. It now shows a wonderfully constant correction, greatly surpassing its excellent performance of former years. The Kulberg sidereal clock for the present is mounted in the time room along with the mean time master and transmitting clocks, chronograph and electric apparatus connected with the time service.

Wires from the observatory on Douglas avenue connect through the Western Union office with the time ball apparatus on the custom house. At 1 p.m. each week-day the circuit is automatically closed by our transmitting clock and the time ball dropped through the electrical apparatus installed in the time ball tower. The loop line from the observatory to the Western Union office is also used for sending the daily time signals, where special arrangements have been made to transmit this signal to all points covered by them in the Maritime Provinces. When not in use for other purposes the loop line synchronizes a clock in their public office here.



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The electric clock in Halifax has been daily sent a synchronizing signal at 10 a.m. If, through wire trouble, it fails them at that hour, the signal is repeated at following hours until satisfactorily received. This clock electrically releases the time ball on the citadel at 1 p.m. each week day. Chronometer and watch adjusters in Halifax have sounders on their premises to receive our 10 a.m. time signals. Some installations of electric clocks there use the signal to synchronize their master clocks.

Additions have been made to the list of electric clocks in different parts of the city, which are hourly corrected by our master clock. The wire service is well taken care of by the local telephone company, who, for a nominal sum lease a wire for this purpose. This system of hourly synchronizing clocks has proved to be most satisfactory and useful.

The tower clock was installed in March. It is entirely electric. The tower movement is governed by a special master clock in a room below. The tower movement has a heavy pendulum, the function of which is not to keep time, but to drive a large ratchet wheel, which in turn drives the hands around the dial. The heavy pendulum is re-energized by an electro-magnet when its oscillations fall below a predetermined value. The driving pendulum is of such length that the long hand is driven through a half-minute space in approximately twenty-seven seconds, the pawl is then automatically lifted so that although the pendulum motor still continues to vibrate the hands remain stationary until a current from the master clock dead on the half minute, releases the pawl and the hands are driven forward for another half minute on the dial.

I have the honour to be, sir,

Your most obedient servant,

D. L. HUTCHINSON,

*Director, St. John Observatory.*

#### APPENDIX C.

VICTORIA, B.C., OBSERVATORY, May 27, 1915.

The Director, Meteorological Service,  
Toronto, Ont.

SIR,—I have the honour to submit the following report upon this observatory and the work performed here, for the fiscal year ending March 31, 1915.

This building was completed in April, 1914. It is situated upon Gonzales heights, which, being 215 feet above the sea, commands an unobstructed and magnificent view from all directions, while its distance from the centre of the city is only two miles.

The building is of reinforced concrete, two storeys in height, and though only 42 feet square, it presents a conspicuous object for miles, both from land and sea, as the exterior is coated with a special white paint.

On the main floor are two small offices, hall, large general office, fireproof vault, observer's bed-room, clock and chronometer room, transit room, where is mounted the 3-inch transit telescope.

On the roof level there is mounted on a special concrete pier, which rises from the rock, my 5-inch equatorial telescope. This is well housed under a 14-foot dome which revolves.

A walk is also provided on the roof for observational purposes and for the benefit of visitors.



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The stair leading to the ground floor is specially cushioned on the concrete floor, and the latter is also laid on 18 inches of sand and gravel and insulated from the walls to prevent the vibration of walking from being transmitted to the delicate instruments installed nearby. This floor contains three rooms for seismographs in which four instruments are now mounted, and piers are provided for other delicate instruments which have not yet arrived.

A photograph room, furnace room, laboratory, spare room, store room and lavatory are also on this floor. Owing to the elevation of the building the water supply is pumped automatically to a reservoir on the roof.

On the 22nd of April, 1914, the observations were started at this building, and during the year this has proved a far superior site to the old one situated in the centre of the city. The wind exposure is excellent from all quarters, and no smoke or dust reduces the amount of bright sunshine to be recorded.

The regular tri-daily meteorological observations are taken; those at 5 a.m. and 5 p.m. are telegraphed to Toronto, Winnipeg and Portland, Oregon.

The weather forecasts derived from the synoptic weather charts are made out here twice each day except on Sundays. These are published in the morning and evening papers, both here and on the lower mainland, and each morning at 9 o'clock a weather bulletin is printed here and over thirty of them are quickly distributed in the city. The C.P.R. Telegraph Company also post these bulletins at all their offices here, at Vancouver and New Westminster.

A weekly summary of the weather throughout this province is also printed and mailed to the press of the province; also a monthly report is issued.

Storm warnings have been issued during the year both for this district, Nanaimo, and Vancouver, and numerous inquiries from mariners have been answered. These warnings have been of particular value to fishermen and small craft.

During the past summer this office has been of considerable service to the Provincial Forestry Department by furnishing special forecasts respecting the advent of great heat or hot, dry winds in the interior of the province. These decrease the forest-fire risks and permit of extra assistance to be sent to the danger zones. Better results are even looked for during the coming summer on account of the extra telegraph reporting stations you have started in connection with this service.

During the early summer months of last year large numbers of visitors, were shown over this building, and all were delighted with the unexcelled view obtained from the roof, and interested in the instruments that were personally explained to them.

During the fine evenings parties were allowed to look through the equatorial telescope, and informal addresses were given in the large room. Over one thousand visitors were registered here in three months. With the beginning of the war the building and grounds were closed to the public for certain military reasons.

During the winter months I have given a course of popular scientific lectures in the city in aid of certain patriotic funds, and altogether had an attendance of over 3,000.

The seismographs now in use are the Milne type with east-west component, which was moved from the old site, where it had been in continuous operation since 1898.

A north-south Milne type constructed by me, a Ewing type which records on smoked glass, and one to record on revolving smoked paper the actual vertical movements of the earth during the passage of earthquakes.

The following table gives the monthly and yearly number of earthquakes recorded here on the Milne type which shows a total of 112. This large number of recorded quakes may be due to the fine rock foundation obtained here.

During the winter months "microseisms" were frequently well recorded. They appear to be most pronounced preceding certain types of storms. These, when the time will permit, will be more closely studied in conjunction with my hydro-aerograph



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records and our synoptic weather charts, for it is possible certain minute earth vibrations may reach our delicate instruments on this coast in advance of some great ocean storms.

The daily vertical movements of the earth have also been measured for the past year; these, in conjunction with similar observations already measured for the past sixteen years, form a long series of pendulum movements, which it is hoped may be published in full, as the results appear to have some practical bearing upon the causes of certain terrestrial phenomena, such as earthquakes, colliery gas explosions and some meteorological conditions.

As the observatory is properly isolated from other buildings, and as my almost constant attendance is necessary here both night and day, I respectfully urge that a residence be allowed me on the observatory property.

I have the honour to be, sir,

Your obedient servant,

F. NAPIER DENISON,

*Superintendent.*



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## APPENDIX No. 7.

ANNUAL REPORT OF THE MEDICAL SUPERINTENDENT OF THE  
MARINE HOSPITAL SERVICE, FOR THE FISCAL  
YEAR 1914-15.

A. JOHNSTON, Esq.,  
Deputy Minister of Marine and Fisheries,  
Ottawa, Ont.

SIR,—I have the honour to submit the annual report of the transactions of the Marine Hospital Service, for the fiscal year ended March 31, 1915.

I have the honour to be, sir,

Your obedient servant,

C. H. GODIN, M.D.,  
*Medical Superintendent, Marine Hospitals Service.*

Amount of appropriation.....	\$75,000 00
Amount of expenditure .....	65,397 85
Balance not expended . . . . .	\$ 9,602 15

## EXPENDITURE BY PROVINCES.

Province.	Number of seamen.	Number of days.	Total expenditure.
			\$ cts.
Nova Scotia.....	1,326	12,092	28,523 98
New Brunswick .....	437	3,033	8,564 22
Prince Edward Island.....	228	3,018	4,465 66
Quebec.....	855	7,282	14,740 69
British Columbia .....	184	3,824	8,649 75
General Account.....			453 55
Total. . . . .	3,030	29,249	65,397 85



Table showing the Expenditure for each Port.

Port.	Number of seamen.	Number of days given.	Total expenditure.
			\$ cts.
Nova Scotia—			
Advocate Harbour and Apple River.....	26	30	408 50
Amherst.....	1	12	37 50
Annapolis Royal.....	3		160 00
Arichat.....	27	163	363 95
Baddeck.....	15		118 00
Barrington.....	5	56	332 00
Barton.....	9	685	561 28
Bear River.....	4	28	166 00
Bridgetown.....	1		9 00
Bridgewater.....	22	28	220 00
Canning.....	2		36 25
Canso.....	52	183	593 00
Chester.....	2		22 50
Cheticamp.....	55	14	347 85
Cheverie.....	9	28	60 05
Church Point.....	1		3 75
Clark Harbour.....	5	21	259 00
Clementsport.....	2	20	57 56
Digby.....	34	132	383 57
Economy.....	1		84 00
Five Islands.....	2	42	176 00
Freeport, Westport and Tiverton.....	22	801	780 47
Glace Bay.....	2		150 00
Guysboro.....	1		5 65
Halifax—Victoria General Hospital.....	222	3,540	5,373 00
Halifax Board of Health.....	14	57	252 20
Halifax Seamen's Society.....			200 00
Hantsport.....	4		32 75
Ingram Docks.....	8		36 85
Joggins Mines.....	3		33 50
Kentville.....	1	206	208 76
Kingsport.....	5		20 30
Lahave.....	18		545 50
Liverpool.....	25	90	542 61
Lockeport.....	34	101	230 05
Louisburg.....	22	624	1,102 93
Lunenburg.....	19	515	2,452 62
Mahone Bay.....	15		115 75
Maitland.....	1		1 00
Marble Mountain.....	3		9 00
Margaree.....	3		66 75
Margaretville and Middleton.....	8	118	491 65
Meteghan.....	2	69	82 82
North Sydney.....	146	362	1,162 00
North Sydney Sailors' Institute.....			100 00
Parrsboro.....	30	70	370 00
Pictou.....	101	415	970 00
Point Tupper and Ports Hastings, Hawkesbury and Mulgrave.....	30	102	588 41
Port Dufferin.....	4		60 50
Port Greville.....	3		150 00
Port Latour.....	6		125 00
Port Morien.....	2		160 75
Port Wade.....	1		40 00
Pubnico.....	22	260	546 25
Pugwash.....	8		52 50
River Hebert.....	4		228 00
Salmon River.....	2	30	36 71
Sandy Cove.....	13	76	338 00
Sandy Point.....	4		14 00
Sheet Harbour.....	1	7	23 85
Shelburne.....	8		104 16
* Springhill.....	6	197	304 20
Spry Bay.....	1	7	110 50
St. Peters.....	18		250 00
Sydney.....	78	2,753	3,867 59
Wallace.....	5		87 25



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Table Showing the Expenditure for each Port—*Continued.*

Port.	Number of seamen.	Number of days given.	Total expenditure.
			\$ cts.
Nova Scotia— <i>Con.</i>			
Walton .....	4	28	51 50
West Bay .....	1		5 00
Whycocomagh .....	1		3 00
Weymouth .....	14		125 00
Windsor .....	17		120 00
Yarmouth .....	86	222	1,348 84
	1,326	12,092	\$28,523 98
New Brunswick—			
Alma and Albert .....	7		161 00
Bathurst .....	6	4	152 92
Beaver Harbour .....	2	28	30 00
Buctouche .....	5	28	29 00
Campbellton .....	32	46	385 05
Cape Tormentine and Baie Verte .....			150 00
Caraquet .....	17		56 50
Dalhousie .....	27		250 00
Dorchester .....	2		12 00
Douglastown .....	30	228	1,243 76
Grand Harbour .....	7	28	234 00
Hillsboro and Hopewell Cape .....	11		150 00
Jacquet River .....	7		30 50
Moncton .....	4	20	252 00
North Head and Grand Manan .....	7		66 25
Riverside and Harvey .....	2		17 00
Richibucto .....	1		200 00
Sackville .....	2		4 40
Shediac .....	9		200 00
Shippigan .....	20		25 00
St. Andrews .....	5		6 35
St. John: General Public Hospital .....	213	2,615	3,999 50
St. John City .....	7		355 50
Seamen's Mission Society .....			200 00
St. Martins .....	7	12	73 63
St. George .....	7	24	279 86
Total .....	437	3,033	8,564 22
Prince Edward Island—			
Alberton .....	3		15 00
Cardigan .....	2		35 50
Crapaud .....	3		36 50
Charlottetown: Charlottetown Hospital .....	23	641	972 50
Prince Edward Island Hospital .....	31	1,160	1,744 00
Charlottetown City .....	5	23	528 49
Georgetown .....	8		23 75
Montague .....	7		46 75
Murray Harbour .....	8		100 00
Souris .....	84	57	353 42
Summerside .....	38	72	353 00
Tignish and Miminégash .....	5	28	143 35
New London .....	8	21	66 65
Rustico .....	1	16	38 75
Vernon River .....	2		8 50
Total .....	228	3,018	4,465 66
Quebec—			
Carlton .....	2		65 50
Chandler .....	3	6	50 25
Champlain .....	4		65 50
Chicoutimi .....	2	92	110 40
Levis .....	1	6	6 00
Magdalen Islands .....	9	10	124 14
Matane .....	4		28 65
Montreal: General Hospital .....	241	2,348	3,641 25



Table Showing the Expenditure for each Port—*Concluded*.

Port.	Number of sea- men.	Number of days given.	Total Expenditure.
			\$ cts.
Quebec— <i>Con.</i>			
Notre Dame Hospital.....	239	2,462	3,735 00
Western Hospital .....	1	15	19 50
St. Paul's Hospital.....	1	15	25 50
Alexandra Hospital.....	1	35	91 50
Catholic Sailors' Club.....			200 00
Montreal Seamen's Institute.....			200 00
Murray Bay.....	1		5 00
New Richmond.....	1		5 50
Paspebiac .....	2		125 00
Perce.....	3		9 95
Quebec: Hotel Dieu Hospital .....	46	724	1,086 00
Jeffrey Hale Hospital.....	89	1,139	1,708 50
Rimouski ...	8		104 65
St. John.....	33		600 00
Sorel.....	134	406	2,361 60
Three Rivers .....	30	24	371 60
Total.....	855	7,282	14,740 69
British Columbia—			
Chemainus .....	10	21	82 25
Nanaimo.....	33	18	618 00
New Westminster.....	1	11	61 00
Port Simpson.....	1		8 00
Prince Rupert.....	18	242	1,157 25
Queen Charlotte City.....	1	37	114 75
Union Bay ..	1	87	556 00
Vancouver: St. Paul's Hospital.....	60	1,918	2,890 50
Vancouver Seamen's Institute.....			200 00
Victoria: St. Joseph's Hospital.....	54	1,478	2,632 00
Victoria.....	5	12	130 00
Victoria Seamen's Institute.....			200 00
Total.....	184	3,824	8,649 75

TABLE showing Expenditure for Treatment, Board, Supplies, etc.

	Nova Scotia.	New Brunswick.	Prince Ed- ward Island.	Quebec.	Brit'ish Columbia.	General Account.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Board in hospitals and pri- vate house .....	10,429 93	4,294 13	2,911 58	10,703 64	5,770 25	.....
Medical and surgical treat- ment .....	3,570 20	1,173 93	744 10	2,197 40	603 50	.....
Medical officers and keepers salaries .....	9,461 01	2,350 00	650 00	1,075 00	1,862 50	.....
Fuel .....	893 32	21 00				.....
Water.....	32 00					.....
Light.....	156 14	62 00				.....
Supplies.....	552 54	101 46		41 60		.....
Telephone Service.....	126 03	19 30				.....
Drugs, instruments etc.,...	195 00					.....
Repairs and maintenance..	2,266 06	226 00				.....
Burials.....	75 00	13 00		52 25		.....
Transportation.....	117 40	48 40	37 00	170 55	13 50	.....
Special nursing.....	349 35	40 00	122 98	8 50		.....
Grants.....	300 00	200 00		400 00	400 00	.....
Medical assistance .....		15 00		91 75		.....
Printing and stationery....						453 55
	28,523 98	8,564 22	4,465 66	14,740 69	8,649 75	453 55



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TABLE showing amount of Salaries paid to the medical officers and keepers during the fiscal year 1914-15.

Nova Scotia.		New Brunswick.	
Medical Officers—		Medical Officers—	
Advocate Harbour and Apple River.	\$ 350 00	Bathurst.. . . . .	\$ 150 00
Annapolis.. . . . .	160 00	Campbellton.. . . . .	350 00
Arichat.. . . . .	300 00	Cape Tormentine and Baie Verte..	150 00
Barrington.. . . . .	300 00	Dalhousie.. . . . .	250 00
Barton.. . . . .	250 00	Douglastown.. . . . .	450 00
Bear River.. . . . .	150 00	Hillsboro and Hopewell Cape..	150 00
Bridgewater .. . . . .	200 00	Moncton.. . . . .	200 00
Canso.. . . . .	375 00	Richibucto.. . . . .	200 00
Clark Harbour.. . . . .	250 00	Shediac.. . . . .	200 00
Digby.. . . . .	250 00		\$2,100 00
Freeport, Westport and Tiverton ..	400 00	Keepers—	
Glace Bay.. . . . .	150 00	Douglastown.. . . . .	250 00
Liverpool.. . . . .	25 00		\$2,350 00
Lockeport .. . . . .	200 00	Prince Edward Island.	
Louisburg.....	250 00	Medical Officers—	
Lunenburg.. . . . .	500 00	Murray Harbour and Murray River.	\$ 100 00
Margaretville and Middleton and		Souris.. . . . .	300 00
Port George.. . . . .	250 00	Summerside.. . . . .	250 00
North Sydney.. . . . .	746 85		Total.. . . . . \$ 650 00
Parrsboro.. . . . .	300 00	Quebec.	
Pictou.. . . . .	400 00	Medical Officers—	
Port Greville.. . . . .	150 00	Paspebiac and New Carlisle ..	\$ 125 00
Ports Hawkesbury, Hastings, Mul		St. John.. . . . .	600 00
grave, and Point Tupper.. . . .	300 00	Three Rivers.. . . . .	350 00
Port Latour.. . . . .	125 00		Total.. . . . . \$1,075 00
Port Morien.. . . . .	125 00	British Columbia.	
Pubnico.. . . . .	125 00	Medical Officers—	
Sandy Cove.. . . . .	300 00	Nanaimo.. . . . .	\$ 600 00
Shelburne and Sandy Point ..	104 16	Prince Rupert.. . . . .	312 50
Sydney.. . . . .	500 00	Union Bay.. . . . .	400 00
St. Peters, L'Ardoise, and River		Victoria.. . . . .	550 00
Bourgeois.. . . . .	250 00		Total.. . . . . \$1,862 50
Weymouth.. . . . .	125 00		
Windsor.. . . . .	120 00		
Yarmouth.. . . . .	400 00		
	\$8,431 01		
Keepers—			
Digby.. . . . .	\$ 50 00		
Louisburg.. . . . .	300 00		
Lunenburg.. . . . .	200 00		
Pictou.. . . . .	180 00		
Sydney .. . . . .	300 00		
	1,030 00		
	\$9,461 01		



TABLE showing Expenditure for Physicians' Services and Travelling Expenses, Drugs and Board.

Port.	Physicians' Services.	Physicians' Travelling Expenses.	Drugs.	Board.	Total Expenditure
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<i>Nova Scotia—</i>					
Advocate Harbour and Apple River				16 00	16 00
Amherst	23 50		5 50	8 55	37 55
Arichat				63 95	63 95
Baddeck	37 00	29 00	52 00		118 00
Barrington				32 00	32 00
Barton				293 43	293 43
Bear River				16 00	16 00
Bridgetown	7 00		2 00		9 00
Bridgewater				20 00	20 00
Canning	20 00		16 25		36 25
Canso				183 00	183 00
Chester	5 00	15 50	2 00		22 50
Cheticamp	117 00	125 00	95 85	10 00	347 85
Cheverie	28 00	6 50	9 55	16 00	60 05
Church Point	2 00		1 75		3 75
Clark Harbour				9 00	9 00
Clementsport	8 50	35 00	5 50	8 56	57 56
Digby	21 00			56 57	77 57
Economy	37 00	37 00	10 00		84 00
Freeport, Westport and Tiverton				361 92	361 92
Five Islands	9 00	81 00	20 00	66 00	176 00
Guysboro	4 50		1 15		5 65
Halifax Victoria General Hospital				5,310 00	5,310 00
Halifax City	130 00			102 20	232 20
Hantsport	17 00		15 75		32 75
Ingram Docks	16 00	15 00	5 85		36 85
Joggins Mines	4 00	26 00	3 50		33 50
Kentville				208 76	208 76
Kingsport	8 00	7 00	5 30		20 30
Lahave	233 00	254 00	68 60		545 50
Lockeport				38 05	38 05
Liverpool	306 00		81 00	105 26	492 26
Louisburg				252 50	252 50
Lunenburg				257 50	257 50
Mahone Bay	58 00	33 00	24 75		115 75
Marble Mountain	5 00		4 00		9 00
Margaree	32 00	29 50	5 25		66 75
Maitland	1 00				1 00
Margaretville and Middleton	22 00	110 00	31 50	59 00	222 50
Meteghan	34 00	13 00	12 25	23 57	82 82
North Sydney	50 00		3 15	362 00	415 15
Parrsboro				70 00	70 00
Pictou				390 00	390 00
Point Tupper	6 00		1 75	102 00	109 75
Port Dufferin	16 00	40 00	13 50		69 50
Port Morien	28 00		7 75		37 75
Port Wade	7 00	28 00	5 00		40 00
Pubnico	134 00	124 00	29 25	134 00	421 25
Pugwash	70 00		12 50		82 50
River Hebert	191 00	12 00	25 00		228 00
Salmon River	4 00	19 00	3 00	10 71	36 71
Sandy Cove				38 00	38 00
Sheet Harbour	3 00	3 00	1 50	7 00	14 50
Sandy Point	4 00	8 00	2 00		14 00
Springhill				295 50	295 50
Spry Bay	16 00	70 00	17 10	5 00	108 10
Sydney				1,370 90	1,370 90
Wallace	60 00	4 00	23 25		87 25
Walton	25 00		10 50	16 00	51 50
West Bay	3 00		2 00		5 00
Yarmouth	13 75			111 00	124 75
Whycocomagh	3 00				3 00
	1,809 25	1,124 50	636 45	10,429 93	14,000 13



## SESSIONAL PAPER No. 21

TABLE showing amount of Salaries paid to the medical officers and keepers during the fiscal year 1914-15—*Continued.*

Port.	Physicians' Service.	Physicians' Travelling Expenses.	Drugs.	Board.	Total Expenditure
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<i>New Brunswick—</i>					
Alma and Albert.....	16 00	122 00	23 00		161 00
Bathurst .....				2 92	2 92
Buctouche.....	7 00	8 00		14 00	29 00
Campbellton.....				32 85	32 85
Cape Tormentine.....					
Beaver Harbour.....	2 00	10 00	4 00	14 00	30 00
Caraget.....	18 50	12 00	26 00		56 50
Dorchester.....	10 00		2 00		12 00
Douglastown.....				114 00	114 00
Grand Harbour.....	62 00	126 00	34 00	12 00	234 00
Harvey and Riverside.....	5 00	7 00	5 00		17 00
Grand Manan and North Head....	22 00	23 00	15 05		60 05
Jacquet River.. . . .	7 00	22 00	1 50		30 50
Moncton.....				52 00	52 00
Shippigan .....	13 00		12 00		25 00
Sackville.....	2 00		2 40		4 40
St. Andrews.....	5 00		1 35		6 35
St. John General Hospital.....				3,986 50	3,986 50
St. John City.....	355 50				355 50
St. George.....	50 00	72 00	19 00	47 86	188 86
St. Martins.....	24 00	21 00	6 63	18 00	69 63
	599 00	423 00	151 93	4,294 13	5,473 06
<i>Prince Edward Island—</i>					
Alberton.....	9 00		6 00		15 00
Cardigan.....	16 00	8 00	11 50		35 50
Crapaud.. . . .	23 00	6 00	7 00		36 00
Charlottetown Hospital.....				961 50	961 50
Prince Edward Island Hospital...				1,740 00	1,740 00
Charlottetown.....	68 00	241 00	55 85	18 66	383 51
Georgetown.....	12 00	11 75			23 75
Montague .....	36 00		10 75		46 75
New London.....	33 50		18 15	15 00	66 65
Rustico.....	3 00	15 00	4 75	16 00	38 75
Souris.....				53 42	53 42
Summerside.....	30 50			72 50	103 00
Tignish and Miminegash.....	65 00	4 00	39 85	34 50	143 35
Vernon River.....	2 00		6 50		8 50
	298 00	285 75	160 35	2,911 58	3,655 68
<i>Quebec—</i>					
Carleton .....	26 00	32 00	7 50		65 50
Champlain.....	51 00		14 50		65 50
Chandler .....	11 00	10 00	11 25	18 00	50 25
Chicoutimi.....				110 40	110 40
Levis .....				6 00	6 00
Magdalen Islands.....	36 00	57 00	15 50	7 14	115 64
Matane .....	5 00	11 00	5 10		21 10
Montreal General Hospital....				3,522 00	3,522 00
Notre Dame Hospital.....				3,693 00	3,693 00
St. Paul Hospital .....				22 50	22 50
Alexandra Hospital.....			1 00	87 50	88 50
Montreal Western Hospital . . .			2 00	15 00	17 00
Murray Bay.....	3 00	1 00	1 00		5 00
New Richmond .....	3 00		2 50		5 50
Perce... ..	4 00		5 95		9 95
Quebec: Jeffrey Hale Hospital...				1708 50	1708 50
Hotel Dieu.....				1086 00	1086 00
Rimouski.....	30 00	35 00	39 65		104 65
Sorel .....	1496 00		280 45	406 00	2182 45
Three Rivers .....				21 60	21 60
	1665 00	146 00	386 40	10703 64	\$12901 04



TABLE showing amount of Salaries paid to the medical officers and keepers during the fiscal year 1914-15.—*Concluded.*

Port.	Physicians' Services.	Physicians' Travelling Expenses.	Drugs.	Board.	Total Expenditure
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Britith Columbia—					
Chemainus .....	43 00		18 25	21 00	82 25
Nanaimo .....				18 00	18 00
New Westminster .....	50 00			11 00	61 00
Port Simpson .....	8 00				8 00
Prince Rupert .....	336 00		1 50	507 25	844 75
Queen Charlotte City .....	35 00		5 75	74 00	114 75
Union Bay .....				156 00	156 00
Vancouver .....				2877 00	2877 00
Victoria: St. Joseph's Hospital....				2082 00	2082 00
Victoria ..	96 00		10 00	24 00	130 00
	568 00		35 50	5770 25	\$6373 75

DETAILED EXPENDITURE FOR FUEL.

Nova Scotia—		
Louisburg Marine Hospital.. . . . .	\$222 50	
Lunenburg " " . . . . .	210 80	
Sydney " " . . . . .	255 30	
Yarmouth " " . . . . .	204 72	
Total.. . . . .		\$893 32
New Brunswick—		
Douglastown Marine Hospital... . . . .	\$21 00	21 00
Total expenditure.. . . . .		\$914 32

DETAILED EXPENDITURE FOR WATER SUPPLY.

Nova Scotia—		
Lunenburg Marine Hospital . . . . .	\$15 00	
Sydney Marine Hospital.. . . . .	17 00	
		32 00

DETAILED EXPENDITURE FOR TELEPHONE SERVICE.

Nova Scotia—		
Lunenburg Marine Hospital.. . . . .	\$27 00	
Sydney Marine Hospital.. . . . .	63 99	
Yarmouth.. . . . .	35 04	
		126 03
New Brunswick—		
Douglastown Marine Hospital.. . . . .	\$19 30	19 30
Total expenditure.. . . . .		\$145 33

DETAILED EXPENDITURE FOR REPAIRS AND MAINTENANCE.

Nova Scotia—		
Lunenburg Marine Hospital... . . . .	\$1,179 88	
Sydney Marine Hospital.. . . . .	528 03	
Yarmouth Marine Hospital.. . . . .	558 15	
Total expenditure.. . . . .		\$2,266 06
New Brunswick—		
Douglastown Marine Hospital.. . . . .	\$226 00	226 00
Total expenditure.. . . . .		\$2,492 06



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GRANTS TO SEAMEN'S INSTITUTES.

<i>Nova Scotia—</i>	
Seamen's Society, Halifax, N.S.. . . . .	\$200 00
North Sydney Institute.. . . .	100 00
<i>New Brunswick—</i>	
Seamen's Mission Society, St. John.. . . .	200 00
<i>Quebec—</i>	
Seamen's Institute, Montreal.. . . .	200 00
Catholic Sailor's Club, Montreal.. . . .	200 00
<i>British Columbia—</i>	
Seamen's Society, Victoria.. . . .	200 00
Strathcona Institute, Vancouver.. . . .	200 00
<hr/>	
Total expenditure.. . . .	\$1,300 00
<hr/>	

DETAILED EXPENDITURE FOR TRANSPORTATION.

<i>Nova Scotia—</i>	
Advocate Harbour.. . . .	\$29 25
Freeport.. . . .	7 05
Halifax Victoria General Hospital.. . . .	55 00
Halifax.. . . .	2 50
Liverpool.. . . .	3 35
Margaretville.. . . .	7 15
Sheet Harbour.. . . .	2 00
Springhill.. . . .	8 70
Spry Bay.. . . .	2 40
<hr/>	
	\$117 40
<i>New Brunswick—</i>	
Campbellton.. . . .	\$ 2 20
North Head.. . . .	6 20
St. George.. . . .	36 00
St. Martin's.. . . .	4 00
<hr/>	
	48 40
<i>Prince Edward Island—</i>	
Charlottetown Hospital... . . . .	\$11 00
Prince Edward Island Hospital.. . . .	4 00
Charlottetown.. . . .	22 00
<hr/>	
	37 00
<i>Quebec—</i>	
Matane.. . . .	\$ 7 55
Montreal General Hospital... . . . .	112 50
Montreal Notre Dame Hospital.. . . .	42 00
Montreal Western Hospital... . . . .	2 50
St. Paul's Hospital.. . . .	3 00
Alexandra Hospital.. . . .	3 00
<hr/>	
	170 55
<i>British Columbia—</i>	
Vancouver.. . . .	13 50
<hr/>	
Total expenditure... . . . .	\$386 85
<hr/>	

DETAILED EXPENDITURE FOR SPECIAL NURSING.

<i>Nova Scotia—</i>	
Advocate Harbour.. . . .	\$13 25
Barton.. . . .	17 85
Canso.. . . .	35 00
Digby.. . . .	6 00
Freeport.. . . .	11 50
Liverpool.. . . .	22 00
Margaretville.. . . .	12 00
Point Tupper.. . . .	138 00
Sheet Harbour... . . . .	7 35
Sydney.. . . .	86 40
<hr/>	
	\$349 35
<i>New Brunswick—</i>	
St. George... . . . .	40 00
<i>Prince Edward Island—</i>	
Charlottetown.. . . .	122 98
<i>Quebec—</i>	
Magdalen Islands... . . . .	8 50
<hr/>	
Total expenditure... . . . .	\$520 83
<hr/>	



DETAILED EXPENDITURE FOR BURIALS.

<i>Nova Scotia—</i>		
Halifax Victoria General Hospital.. . . .	\$ 8 00	
Halifax... . . . .	17 50	
Point Tupper.. . . .	24 50	
Sydney.. . . .	25 00	
		<hr/>
		\$75 00
<i>New Brunswick—</i>		
St. John... . . . .		13 00
<i>Quebec—</i>		
Sorel... . . . .		52 25
		<hr/>
Total expenditure... . . . .		\$140 25

DETAILED EXPENDITURE FOR MEDICAL ASSISTANCE.

<i>New Brunswick—</i>		
St. George.. . . .		\$ 15 00
<i>Quebec—</i>		
Montreal General Hospital.. . . .	\$ 6 75	
Sorel.. . . .	85 00	
		<hr/>
		91 75
		<hr/>
Total expenditure... . . . .		\$106 75

DETAILED EXPENDITURE FOR LIGHT.

<i>Nova Scotia—</i>		
Lunenburg.. . . .	\$ 51 20	
Sydney... . . . .	104 94	
		<hr/>
		\$156 14
<i>New Brunswick—</i>		
Douglastown.. . . .		62 00
		<hr/>
Total expenditure... . . . .		\$218 14

DETAILED EXPENDITURE FOR FURNITURE, BEDDING, AND OTHER SUPPLIES.

<i>Nova Scotia—</i>		
Louisburg Marine Hospital.. . . .	\$ 47 33	
Lunenburg Marine Hospital.. . . .	11 24	
Point Tupper.. . . .	16 16	
Sydney Marine Hospital.. . . .	457 73	
Yarmouth Marine Hospital... . . . .	20 08	
		<hr/>
		\$552 54
<i>New Brunswick—</i>		
Douglastown Marine Hospital.. . . .		\$101 46
<i>Quebec—</i>		
Sorel... . . . .		41 60
		<hr/>
Total expenditure... . . . .		\$695 60

DETAILED EXPENDITURE FOR DRUGS, MEDICINES, ETC.

<i>Nova Scotia—</i>		
Louisburg... . . . .	\$ 30 60	
Sydney... . . . .	158 30	
Yarmouth... . . . .	6 10	
		<hr/>
Total expenditure... . . . .		\$195 00

GENERAL ACCOUNT.

Printing and stationery.. . . .	\$453 55
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## SESSIONAL PAPER No. 21

## TABULAR STATEMENT showing Diseases for which Seamen received Treatment during 1914-15.

GENERAL DISEASES, 694.		GENERAL DISEASES, 694.— <i>Con.</i>	
Measles.. . . . .	6	Taenia.. . . . .	5
Scarlet fever.. . . . .	5	Alcoholism.. . . . .	7
Diphtheria.. . . . .	5	Rheumatism.. . . . .	192
Influenza.. . . . .	126	Gout.. . . . .	1
Enteric fever.. . . . .	67	Anaemia.. . . . .	4
Choleraic diarrhoea.. . . . .	3	Diabetes mellitus.. . . . .	2
Dysentery.. . . . .	33	New growths, non-malignant.. . . . .	1
Malarial fever.. . . . .	26	New growths, malignant.. . . . .	2
Erysipelas.. . . . .	7	Purpura.. . . . .	2
Tuberculosis.. . . . .	21	Congenital malformation.. . . . .	2
Syphilis.. . . . .	76	General debility.. . . . .	14
Mumps.. . . . .	4	Cyst.. . . . .	2
Gonorrhea.. . . . .	57	Neurasthenia.. . . . .	14
Scabies.. . . . .	10		
			694
LOCAL DISEASES, 1,687.			
Diseases of the nervous system—		Broncho-pneumonia.. . . . .	2
1. Of the nerves, 6—		Phtisis.. . . . .	8
Neuritis.. . . . .	6	Pleurisy.. . . . .	46
2. Of the spinal cord and membranes, 1—		Diseases of the digestive system, 484—	
Degeneration of the lateral column.. . . . .	1	Dental caries.. . . . .	5
3. Of the brain and membranes, 1—		Toothache.. . . . .	48
Inflammation dura mater.. . . . .	1	Alveolar abscess.. . . . .	2
4. Functional nervous diseases and other diseases of undetermined nature, 67—		Quinsy.. . . . .	15
Apoplexy.. . . . .	1	Pharyngitis.. . . . .	4
Paralysis.. . . . .	3	Gastritis.. . . . .	83
Congestion of brain.. . . . .	3	Dyspepsia.. . . . .	53
Hemiplegia.. . . . .	1	Ulcer, stomach.. . . . .	1
Epilepsy.. . . . .	7	Gastralgia.. . . . .	3
Meningitis.. . . . .	1	Hemorrhage, stomach.. . . . .	1
Vertigo.. . . . .	1	Indigestion.. . . . .	54
Headache.. . . . .	14	Fistula.. . . . .	5
Neuralgia.. . . . .	30	Enteritis.. . . . .	37
Hysterics.. . . . .	2	Appendicitis.. . . . .	26
Collapse.. . . . .	4	Colitis.. . . . .	8
5. Mental diseases, 7—		Hernia.. . . . .	42
Dementia.. . . . .	1	Intestinal obstruction.. . . . .	4
Insanity.. . . . .	6	Constipation.. . . . .	14
Diseases of the eye, 44—		Diarrhoea.. . . . .	26
Conjunctivitis.. . . . .	36	Ulcer, rectum.. . . . .	1
Iritis.. . . . .	3	Hemorrhoids.. . . . .	34
Ulcer cornea.. . . . .	2	Hepatitis.. . . . .	1
Cataract.. . . . .	1	Cirrhosis.. . . . .	2
Blepharitis.. . . . .	1	Jaundice.. . . . .	4
Trachoma.. . . . .	1	Biliary cholic.. . . . .	3
Diseases of the ear, 35—		Peritonitis.. . . . .	5
Inflammation of the external meatus.. . . . .	5	Dropsy.. . . . .	2
Cerumen.. . . . .	3	Haematuria.. . . . .	1
Otitis media.. . . . .	27	Diseases of the lymphatic glands, 37—	
Diseases of the nose, 10—		Goitre.. . . . .	1
Rhinitis.. . . . .	10	Adonitis.. . . . .	36
Diseases of the circulatory system, 38—		Diseases of the urinary system, 66—	
Endocarditis.. . . . .	28	Nephritis.. . . . .	15
Valvular disease.. . . . .	3	Bright's disease.. . . . .	6
Myocarditis.. . . . .	1	Renal cholic.. . . . .	4
Angina pectoris.. . . . .	1	Calculi of kidneys.. . . . .	11
Arteritis.. . . . .	2	Cystitis.. . . . .	28
Stenosis.. . . . .	3	Retention of urine.. . . . .	2
Diseases of the respiratory system, 354—		Diseases of the generative system, 85—	
Laryngitis.. . . . .	10	Urethritis.. . . . .	14
Bronchitis.. . . . .	170	Balanitis.. . . . .	2
Tonsillitis.. . . . .	73	Stricture.. . . . .	9
Asthma.. . . . .	11	Phimosis.. . . . .	4
Congestion of lungs.. . . . .	2	Paraphimosis.. . . . .	1
Hemorrhage of lungs.. . . . .	9	Chancroids.. . . . .	17
Pneumonia.. . . . .	23	Hydrocele.. . . . .	2
		Varicocele.. . . . .	8
		Orchitis.. . . . .	24
		Epididymitis.. . . . .	3
		Cystitis ovaritis.. . . . .	1







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## APPENDIX No. 8.

## REPORT OF WRECK COMMISSIONER.

OTTAWA, June 9, 1915.

A. JOHNSTON, Esq.,  
Deputy Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit my annual report of investigations and inquiries held during the fiscal year 1914-15 into the causes of wrecks and casualties, as well as statements of wrecks and casualties reported as having occurred to British, Canadian, and foreign vessels in Canadian waters, and to Canadian vessels in other waters, from January 1, 1914, to December 31, 1914, and of those reported as having occurred in inland waters during the same period.

Formal investigations during the year.. . . .	26
Preliminary inquiries during the year.. . . .	10
Departmental inquiries during the year.. . . .	1
Total.. . . .	37

During the calendar year 1914, there were 257 casualties reported to the department, the tonnage of same being 212,842·85, and the damage is approximately estimated at \$5,211,700, while 1,114 lives were lost.

Of this total number of casualties, 212 were to coasting and sea-going vessels, the tonnage of same being 181,055·85, and the damage to which is approximately estimated at \$5,083,765, and 1,113 lives were lost, while forty-five of the casualties were to inland vessels, the tonnage of which was 31,787, and the damage to same is estimated at \$127,935, and one life was lost.

In 104 cases of casualties to coasting and sea-going vessels, and twenty-seven cases of casualties to inland vessels, the amount of damage is not stated.

Seventy-two of the casualties to coasting and sea-going vessels, made up of thirty-one steam vessels and forty-one sailing vessels, resulted in total losses, and of this number fifty-two were Canadian, six British, and fourteen foreign vessels.

Five of the casualties to inland vessels resulted in total losses, all of which were to Canadian vessels, consisting of four steam and one sailing vessel.

I am, sir,

Your obedient servant,

L. A. DEMERS,

*Dominion Wreck Commissioner.*



6 GEORGE V, A. 1916

STATEMENT of Investigations held in Canada into Wrecks and Casualties which occurred to Canadian, British and Foreign Vessels in Canadian Waters during the fiscal year 1914-1915.

Name of Ship.	Registered Port and Official No.	Remarks.
"Assiniboia" .....	Montreal, 125984.. .....	On July 2, stranded on Bad Neighbour shoal, Georgian bay. Formal investigation was held at Toronto, on February 4, before Captain Demers. <i>Finding.</i> —Master exonerated. Lighthouse keeper at Cove island blamed for not operating fog-horn.
"Anglo-Brazilian" ...	London, 135234.. .....	On August 26, stranded in Montreal harbour. Formal investigation was held at Montreal, on September 8 and 9, before Captain Demers. <i>Finding.</i> —No one to blame. Stranding due to parting of tow rope at a critical moment.
"Batisca" and .....	Liverpool, 13314.....	On October 16, collided off Madam island, St. Lawrence river. Formal investigation was held at Quebec, on November 12, before Captain Demers.
"Muriel".....	Quebec, 116709.	<i>Finding.</i> — <i>Muriel</i> alone to blame for collision; but master's certificate not dealt with, as he left instructions to be summoned to deck if needed.
"Canada" .....	Quebec, 117146.....	On July 12, stranded at cape Chatte, gulf of St. Lawrence. Formal investigation was held at Montreal, on August 6, before Captain Demers. <i>Finding.</i> —Master was reprimanded for employing incompetent wheelman and for not issuing written instructions. Mate's certificate was suspended for three months for not complying with verbal instructions and for lack of judgment in not stopping ship when fog shut in.
"Cienfuegos" .....	Norwegian.....	On July 19, stranded on Scatarie island, N.S. Preliminary inquiry was held at Sydney, on July 30, before Mr. V. Mullins. After hearing evidence, formal investigation was found unnecessary.
"Cacouna".....	Montreal, 87993.. .....	On September 26, stranded and subsequently lost at Ferry island point, Newfoundland. Preliminary inquiry was held at Sydney, on September 28, before Mr. V. Mullins, and a formal investigation ensued, being held at Sydney on October 26, before Captain Demers. <i>Finding.</i> —Stranding was due to an error of judgment on part of master, whose certificate was suspended for three months.
"Chebucto" and.....	Halifax, 108683.....	On August 29, collided in Halifax harbour. Formal investigation was held at Halifax, on October 23, before Captain Demers.
"Minia".....	London, 56762.	<i>Finding.</i> —Master of <i>Chebucto</i> to blame for not adopting the proper measures of prudence in navigating his vessel in fog. His certificate was suspended for one month.
"Canada" and.....	Quebec, 117146.....	On October 7, collided near Lachine canal. Formal investigation was held at Montreal on November 10 and 11, before Captain Demers.
"Cape Breton" .....	Montreal, 97808.....	<i>Finding.</i> —Collision was due to lack of judgment on part of master of <i>Canada</i> , who was severely censured and condemned to pay all costs of inquiry.
"Chebucto" and.....	Halifax, 108683.....	On January 30, collided in Halifax harbour. Formal investigation was held at Halifax, on February 11 and 12, before Captain Demers.
"Morwenna".....	Great Britain, 118108.	<i>Finding.</i> — <i>Morwenna</i> solely responsible for collision. Master's certificate was suspended for six months. Certificate of master of <i>Chebucto</i> was suspended for one month, for permitting a passenger entering wheelhouse, which is a violation of marine laws.
"Dominion" (tug) and ..	Victoria, 116414.....	On June 20, collided in Victoria harbour. Preliminary inquiry was held at Victoria, on July 15, before Captain MacPherson.
"St. Lawrence".....	St. Johns, Nfld., 117295.	<i>Decision.</i> —Collision was caused solely by wrongful act of master of <i>Dominion</i> .



## SESSIONAL PAPER No. 21

STATEMENT of Investigations held in Canada into Wrecks and Casualties which occurred to Canadian, British and Foreign Vessels in Canadian Waters during the fiscal year 1914-1915—*Continued.*

Name of Ship.	Registered Port and No.	Remarks.
"Doncella" and "West Vancouver No. 5."	Vancouver, 131034... Vancouver, 134086.	On July 4, collided in Vancouver harbour. Formal investigation was held at Vancouver, on August 6 and 7, before Captain MacPherson <i>Finding.</i> —Collision was caused solely by carelessness of Master of <i>West Vancouver No. 5</i> , disregarding the rules of the road. His certificate was suspended for three months. Master of <i>Doncella</i> is censured for not having reduced speed of his vessel earlier, but he is not to be blamed for accident.
"Empress of Ireland" and "Storstad."	Liverpool, 123972. .... Norwegian.	On May 29, collided off Cock Point buoy, St. Lawrence river. The <i>Empress of Ireland</i> was sunk, and 1,042 lives were lost. Preliminary inquiry was held at Montreal and Quebec, from May 31 to June 5, before Commander Lindsay, and a formal investigation ensued, being held at Quebec from June 6 to June 27, before Lord Mersey, Judge E. C. McLeod, and Sir A. A. Routhier. <i>Finding.</i> —The Captain of <i>Empress of Ireland</i> would have been better advised if he had given the <i>Storstad</i> a wider berth and navigated his ship to pass her at a greater distance on his beam than he originally intended. His failure to do this is not considered the contributory cause of disaster, nor was stopping of his engines an unseamanlike act. First officer of <i>Storstad</i> was found culpable of negligence in omitting to call captain when fog came on, and in altering his course in fog and keeping navigating of vessel in his own hands.
"Floriston".	Newcastle, 110335. ....	On August 29, stranded in Newfoundland. Formal investigation was held at Quebec, on September 13, before Captain Demers. <i>Finding.</i> —Master was severely reprimanded for his negligence in not supplying ship with proper charts, and for his lack of seamanship in beaching his vessel on a rocky bottom. Second officer was cautioned.
"Floriston".	Newcastle, 110335. ....	On October 13, stranded and subsequently lost near Guiois island, N.S. Formal investigation was held at Louisburg, on October 27, before Captain Demers. <i>Finding.</i> —Master to blame for reckless navigation. His certificate is suspended for a year.
"Glendene"	Whitby, 131839. ....	On November 26, stranded near Cap à la Madeleine, St. Lawrence river. Preliminary inquiry was held at Montreal, on November 30, before Commander Lindsay. <i>Decision.</i> —Accident was due to slight error of judgment on part of pilot, caused by the climatic conditions prevailing at the time. Formal investigation was found unnecessary.
"Handon Hall".....	West Hartlepool, 112433.	On November 20, stranded at Trinity bay, Gulf of St. Lawrence. Preliminary inquiry was held at Quebec on November 28, before Mr. T. Beland, and as crew had left for England a formal investigation could not be held.
"J. H. Plummer".....	Newcastle, 14447.....	On May 10, stranded in Montreal harbour. Formal investigation was held at Montreal, on May 15, before Commander Lindsay. <i>Finding.</i> —No one to blame. Stranding caused by reason of attempting to move vessel without the assistance of a tug, a strong breeze blowing at the time.
"King Malcolm" .....	Italian .....	On July 18, stranded near Yarmouth, N.S. Preliminary inquiry was held at Yarmouth, on July 28, before Captain Murphy. Formal investigation was found unnecessary.



STATEMENT of Investigations held in Canada into Wrecks and Casualties which occurred to Canadian, British and Foreign Vessels in Canadian Waters during the fiscal year 1914-1915—*Continued.*

Name of Ship.	Registered Port and Official No.	Remarks.
"Montfort" .....	Liverpool, 110568. ....	On April 28, stranded at Beauport shoal, St. Lawrence river. Formal investigation was held at Montreal, on May 5, before Commander Lindsay. <i>Finding.</i> —Stranding was caused entirely by want of skill and by poor judgment of pilot, who did not know the position of vessel after entering fog. His certificate was suspended for three months. Case was re-heard at Quebec, on November 18, by Captain Demers. <i>Finding.</i> —Accident was due to grave error of judgment on part of pilot, who is severely censured and fined \$100, which, owing to previous suspension, was not enforced.
"Monkshaven" .....	Whitby, 131333.....	On August 23, stranded at St. Felicité, St. Lawrence river. Formal investigation was held at Quebec, on September 11, before Captain Demers. <i>Finding.</i> —Master was censured for not employing reliable methods of ascertaining the exact position of vessel. Chief officer was reprimanded and severely censured for not having exercised due precaution.
"Montmagny" and..... "Lingan".....	Sorel, 126457..... Hartlepool, 132810.	On September 18, collided near Crane island, St. Lawrence river. The <i>Montmagny</i> was sunk and fourteen lives were lost. Preliminary inquiry was held at Quebec, on September 19, before Mr. A. de B. Tremain, and a formal investigation ensued being held at Quebec, on October 6, 7, 8, 9, 14, and 15, before Captain Demers. <i>Finding.</i> —Collision was entirely due to faulty navigation on part of pilot and crew of <i>Lingan</i> . Master was reprimanded for having left bridge while ship was navigating in narrow waters. Pilot's license was suspended for balance of season, and he was fined \$200. Chief officer's certificate was suspended for ten months.
"Montcalm" and. .... "Lauzon".....	Ottawa, 117069 . .... Quebec, 126843.	On November 10, collided in Quebec harbour. Formal investigation was held at Quebec, on November 20, before Captain Demers. <i>Finding.</i> —Collision was due entirely to error of judgment on part of master of <i>Lauzon</i> , who was reprimanded.
"Navarra" .....	Glasgow, 128283.....	On December 29, stranded near Holmes island, Nova Scotia. Formal investigation was held at Yarmouth, on January 7 and 8, before Captain Demers. <i>Finding.</i> —Master, first and second officers were found guilty of negligence in navigating ship. Master's certificate was suspended for ten months, second officer for six months, and chief officer for three months.
"Princess Victoria" and "Admiral Simpson" ..	London, 115953..... American.	On August 26, collided in Puget sound, near Seattle, Wash. Formal investigation was held at Victoria, on September 18 and 19, before Captain MacPherson. <i>Finding.</i> —Collision was caused by those in charge of <i>Admiral Simpson</i> improperly porting their helm a few minutes before accident. Master or officers of <i>Princess Victoria</i> not to be blamed.
"Prince Albert" .....	Prince Rupert, 99584..	On August 18, stranded on Tree Knob group, British Columbia. Formal investigation was held at Victoria, on September 4 and 5, before Captain MacPherson. <i>Finding.</i> —Stranding was due solely to fault of officer in charge. Master was severely reprimanded for not having left definite instructions to be called, if necessary; but, on account of his long and good record, his certificate was not dealt with.



## SESSIONAL PAPER No. 21

STATEMENT of Investigations held in Canada into Wrecks and Casualties which occurred to Canadian, British and Foreign Vessels in Canadian Waters during the fiscal year 1914-15—*Concluded*.

Name of Ship.	Registered Port and Official No.	Remarks.
"Princess Royal" . . . .	Victoria, 121988 . . . . .	On October 27, stranded in Sabine channel, British Columbia. Formal investigation was held at Victoria, on November 19, before Captain MacPherson. <i>Finding</i> .—Accident was due to steering for a narrow and intricate channel, in foggy weather, when there is an alternative of a wide and safe one. Master was severely censured.
"Princess Patricia" and "Venture" . . . . .	Victoria, 115685 . . . . . Victoria, 129475.	On December 18, collided in Vancouver harbour. Formal investigation was held at Vancouver, on January 15, before Captain MacPherson. <i>Finding</i> .— <i>Princess Patricia</i> was solely at fault; but accident was almost inevitable owing to limited space in which vessels had to manoeuvre.
"Ragnar" . . . . .	Norwegian . . . . .	On July 19, stranded near Baleine, Cape Breton. Preliminary inquiry was held at Sydney, on July 30, before Mr. V. Mullins. Formal investigation was found unnecessary.
"Robert R. Rhodes" and "Kenora" . . . . .	Montreal, 131109 . . . . . Toronto, 103680.	On August 4, collided in Cornwall canal. Formal investigation was held at Montreal, on October 30, before Captain Demers. <i>Finding</i> .— <i>Kenora</i> was at fault for undertaking dangerous and reckless manoeuvre in passing <i>Robert R. Rhodes</i> so close at place of accident. Master was severely reprimanded and cautioned to be more careful in future.
"Saturnia" . . . . .	Glasgow, 129489 . . . . .	On April 28, grounded at Lower Traverse, St. Lawrence river. Formal investigation was held at Montreal, on May 4 and 5, before Commander Lindsay. <i>Finding</i> : Stranding was caused by action of pilot, inasmuch as he appeared to have had no confidence in himself as to the manner of navigating his vessel through the channel. His certificate was suspended for three months. Captain was censured. Case was reheard at Quebec, on November 18, before Captain Demers. <i>Finding</i> : Stranding was due to error of judgment on part of pilot, who is severely reprimanded.
"Saskatoon" . . . . .	Sunderland, 123965 . . . . .	On July 25, stranded opposite Portneuf, St. Lawrence river. Formal investigation was held at Montreal, on July 31 and August 1, before Captain Demers. <i>Finding</i> : Pilot was found at fault for having mistaken black buoy for red one. His license was cancelled. Master's certificate was suspended for one month, for lack of interest with regard to his responsibilities as master. One of the assessors dissented from finding <i>re</i> suspending master's certificate.
"Shenandoah" . . . . .	Liverpool, 102111 . . . . .	On September 3, stranded off Little Musquash, N B. Formal investigation was held at St. John, on September 22, before Captain Demers. <i>Finding</i> : Master to blame for not having ascertained exact position of vessel by more frequent soundings. He is reprimanded.
"Zealand" . . . . .	Liverpool, 124004 . . . . .	On November 13, stranded at Isle aux Raisins, St. Lawrence river. Preliminary inquiry was held at Montreal, on November 20, before Commander Lindsay. <i>Finding</i> : No one to blame. Accident was unavoidable owing to very limited space in channel for vessel to anchor, and the heavy snow and strong wind prevailing at the time.



STATEMENT OF WRECKS AND CASUALTIES reported as having occurred to British, Canadian, and Foreign Vessels in Canadian Waters, and to Canadian Vessels in other Waters, from January 1 to December 31, 1914.

SEA-GOING AND COASTING VESSELS.

Date of Casualty.	Name of Ship and Off No.	Age of Ship, Years.	Registered Port	How rigged. Iron or wood. Steam or Sail.	Register Tonnage.	Port sailed from. Port bound to.	Place where casualty happened.	Particulars of casualty. Name of master.	Lives Lost.	Loss. Total or partial.
Mar. . .	Acacia . . . . . 83,313	10	Port Medway, N.S.	Bgte . . . . .	180	. . . . .	George banks, N.S. . . . .	Wrecked . . . . .	Crew lost.	Total.
April . .	A. W. Perry . . . . . 106,075	17	Halifax, N.S.	. . . . .	957	. . . . .	Halifax, N.S. . . . .	Damaged by fire . . . . .	. . . . .	Partial, \$5,000.
May . .	Ann Louise Lockwood.	. . . . .	American . . . . .	Schr. . . . .	. . . . .	. . . . .	Walton river, N.S. . . . .	Stranded . . . . .	. . . . .	Total.
May 24	Alice Gertrude . . . . . 111,738	12	Shelburne, N.S.	Schr. . . . . Wood Sail	81	Shelburne, N.S. . . . . Fishing.	West of Seal Island, N.S. . . . .	Stranded . . . . . H. Croswell.	. . . . .	Total, \$2,500.
" 25	Abana . . . . . 94,790	25	Charlotte town, P.E.I.	Schr. . . . .	76	. . . . .	Off Carleton Pt., Northumberland str. . . . .	Stranded . . . . .	4	Total, \$8,000.
June 25	Avon . . . . . 100,578	21	Halifax, N.S.	Schr. . . . . Wood Sail	49 10	St. Mary's Bay, Nfld. . . . . Fishing.	St. Mary's bay . . . . .	Stranded . . . . . D. Linehan.	. . . . .	Total, \$3,000.
" 30	Advance . . . . . 112,060	12	Windsor, N.S.	Schr. . . . . Wood Sail	294 78	Kingston, Ja . . . . . Fishing.	Elnthra isld., Bahamas. . . . .	Stranded . . . . . H. L. Walley.	. . . . .	Total, \$10,000.
Aug. . . .	Athlete . . . . .	. . . . .	American . . . . .	Schr. . . . .	. . . . .	. . . . .	Black ledge, Country hr., N.S. . . . .	Stranded . . . . .	. . . . .	Partial.
" 2	Alice J. Crabtree. . . . . 106,829	23	New York . . . . .	Schr. . . . . Wood Sail	325	St. Andrews, N.B. . . . . Bridgewater, N.S.	Port Jollie head. . . . .	Stranded . . . . . O. N. Crabtree.	. . . . .	Total, \$8,000.
" 26	Anglo-Brazilian. . . . . 135,294	1	London . . . . .	Schr. . . . . Steel Steam	1,668	North Shields, G.B. . . . . Adelaide, Australia.	Montreal harbour . . . . .	Stranded . . . . .	. . . . .	Partial, \$5,000.
Dec. 19	Alice . . . . . 130,305	24	Vancouver, B.C.	Wood Steam	37 49	Vancouver, B.C. . . . . Adelaide, Australia.	Vancouver harbour. . . . .	Damaged by fire . . . . . R. Drever.	. . . . .	Partial, \$2,000.



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Jan. 19	Broadmayne	26	Swansea, G.B.	Schr. Iron	1,946	New York, Calais, France.	Lat. 44° 03' N. Long. 55° 50' W.	Loss of bridge and boat.	Partial.
Feb. . .	Batsford	1	London	Schr. Steel	2,906	Sunderland	Off Cape Race and Louisburg.	Damaged by ice.	"
Mar. 21	British Empire 111,335	12	Grangemouth, G.B.	Schr. Steel	255	Vancouver, B.C.	North channel, B.C.	Plate damaged.	"
April 16	Bendu 123,995	8	Liverpool	Schr. Steel	1,758	Prince Rupert, B.C.	Off Sydney hr., N.S.	Damaged by drifting ice.	"
May 11	Batiscan 131,314	3	Liverpool	Schr. Steel	2,659	Louisburg, N.S.	45 miles east of Flat pt., N.S.	Damaged by ice.	"
June 1	Bray Head 102,133	20	Belfast	Schr. Steel	1,951	Dublin	Opposite harbour of Quebec.	Collided and sank barge.	No damage.
" 10	Bohemia	13	Gloucester, U.S.A.	Schr. Wood	86	Montréal	40 miles N. of Magdalen islands.	Damaged in gale.	Partial.
" 27	Budapest 1,168	31	Hungary	Schr. Steel	2,321	Buenos Ayres, Hull.	Montréal harbour.	Collided with "Pilarde-Larrinaga."	No damage.
" 30	Bessie Dollar 12,272	8	Victoria, B.C.	P. & F. Steel	2,797	Seattle, Wash.	Shanghai harbour.	Collided with "Shungo Maru."	Partial.
Aug. 16	Bobs 92,747	20	Dorchester, N.B.	Schr. Wood	97	Port Greville, Boston, Mass.	Off Port Greville, Minas channel, N.S.	Strung a leak.	Partial, \$700.
Aug. 25	Beaver 100,056	23	St. John, N.B.	Schr. Wood	192	Campbellton, N.B.	Richibucto head, P.E.I.	Stranded.	Partial, \$200.
Oct. 13	British Columbia 119,063	11	Glasgow	Schr. Steel	221	Prince Rupert, B.C.	San Josef bay, B.C.	Stranded.	Part., \$1,300.
Oct. 16	Batiscan 131,314	1	Liverpool	Schr. Steel	2,659	Sydney, N.S.	Off Madam isld., St. Lawrence R.	Collided with "Murial."	Part., \$5,000.
Nov. 3	Bobs 92,747	20	Dorchester, N.B.	Schr. Wood	97	Parisboro, N.S.	Light House bar, Parisboro R.	Stranded.	Total, \$600.
Nov. 14	Batiscan 131,314	4	Liverpool	Schr. Steel	2,659	Sydney, N.S.	Middle beach, lake St. Peter.	Collided with "Ros sano."	Partial.
Jan. 13	Cobequid 58,866	20	Southampton	Schr. Steel	2,960	London	Trinity rock, bay of Fundy.	Stranded and lost.	Total, \$300,000.



Date of Casualty.	Name of Ship and Off. No.	Age of Ship, Years.	Registered Port.	How rigged. Iron or wood. Steam or sail.	Register Tonnage.	Port sailed from. Port bound to.	Place where casualty happened.	Particulars of casualty. Name of master.	Lives Lost.	Loss. Total or partial.
Jan. 17	Carrie L. Wambach 131,164	1	Lunenburg, N.S.	Schr. Wood Sail	108.89	Ingramport, N.S. Denierara, Br. Gna.	Lat. 37° N. Long. 60° W. No. Atlantic.	Abandoned at sea. P. Corkum.	1	Total, ship, \$10,000, cargo, \$2,400.
Jan. —	Canada 111,631	14	Lunenburg, N.S.	Schr. Wood Sail	199	St. Johns, Nfld. "	Atlantic ocean.	Damaged in gale. I. A. Conrad.	.....	Partial.
Mar. 11	Conrad S. 125,964	6	Parrsboro, N.S.	Schr. Wood Sail	298	Florida St. John, N.B.	3 miles off St. John harbour.	Stranded..... Z. M. Hagan.	.....	Partial, ship, \$10,000
Mar. 17	City of Sydney. 115,274	24	Montreal.	Schr. Steel Steam	1,634	New York Halifax, N.S.	Shag rock, entrance to Halifax harbour.	Stranded..... D. M. Macdonald.	.....	Total, \$150,000.
April 9	Conrad S. 125,964	6	Parrsboro, N.S.	Schr. Wood Sail	299	Jacksonville, Fla. St. John, N.B.	No. of Three Sisters, Grand Manan, N.B.	Stranded..... J. S. Hagan.	.....	Partial, ship, \$6,000, cargo, \$3,000.
April 28	Chelohsin. 130,805	3	Vancouver, B.C.	Schr. Steel Steam	598	Vancouver, B.C. "	Lat. 54° 19' N. Long. 130° W. Skeena R., B.C.	Stranded..... J. Edwards.	.....	Part, \$6,500.
May 4	Columbian. 97,811	24	Liverpool	Schr. Steel Steam	3,323	..... .....	Atlantic ocean.	Burnt .....	.....	Total, \$600,000.
May 4	Cairngowan 129,782	3	Newcastle, G.B.	Schr. Steel Steam	256060	Middlesburg. Montreal.	Lat. 41° 21' N. Long. 50° 50' W. East of Nfld.	Collided with ice- berg. J. O. Band.	.....	Partial.
May 7	Clintonia. 204,263	7	Gloucester, Mass.	Schr. Wood Sail	105	Gloucester. Fishing.	Pilot rock, Entrance to Arichathr., N.S.	Stranded..... L. B. Wylds.	.....	"
May 8	Constance 117,016	10	Vancouver, B.C.	Wood Steam Schr. Wood Sail	16	Clayoquot. Vancouver, B.C.	Lat. 48° 41' N. Long. 23° 16' W. Prevost pass, B.C.	Struck submerged rock and sank. H. Blackstad.	.....	Total, \$5,500.
June 5	Cedella	.....	.....	.....	47	..... .....	Sydney harbour, N.S.	Stranded..... J. Multon.	.....	Slight damage.
June 5	Charlotte E. C. 85,642	31	Lunenburg, N.S.	Schr. Wood Sail	79	Halifax, N.S. Labrador.	Pleasant bay, Mag- dalen islds.	Stranded..... M. William.	.....	Total.



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June 25	Cachisholm. 94,645	26	Lunenburg, N.S.	Schr. Wood Sail	78		Sydney harbour, N.S.	Stranded. J. Carmichael.	Partial.
July 12	Canada 117,146	21	Quebec.	Schr. Iron Steam	449	Gaspé, P.Q. Montreal.	Cape Chat, P.Q.	Stranded.	Total, \$10,000.
July 17	Clarence H. Venner	20	American.	Schr. Wood Sail	814	Elizabeth Port, N.Y. Halifax, N.S.	Off cape Sable Light station.	Stranded. S. N. Baker.	Total, \$20,000.
July 19	Cienfuegos.		Cuban.		1,139	Gulfport, Miss. Montreal.	Scatarie isld., N.S.	Stranded. S. J. Johannessen.	Total.
Aug. 7	Constance. 122,031	7	Weymouth, N.S.	Steam Schr. Wood Sail	42	Lucia Kingston, Ja.	Kingston harbour, Ja.	Stranded. J. H. Christian.	Partial.
Aug 29	Chebucto. 108,683	18	Halifax, N.S.	Steel Steam Schr.	230-37	Dartmouth, N.S. Halifax, N.S.	Halifax harbour	Collided with "Minia." C. A. Ozon.	Slight damage.
Sept. 26	Cacouna 87,993	31	Montreal.	Iron Steam	931	St. Johns, Nfld. Montreal.	Ferryland head, Nfld.	Stranded	Total, \$150,000.
Oct. 7	Canada. 117,146	21	Quebec.	Schr. Iron Steam	449	Montreal Montreal.	Near Lachine canal, Montreal harbour.	Collided with "Cape Breton." P. Blouin.	Partial.
Nov. 13	Colonial.	30	American	Wood Steam Schr.		Oswego, N.Y. Milwaukee, Wis.	Pardos, lake Erie	Foundered Capt. Reed.	Total.
Nov. 20	Cheslie. 103,736	18	Parrsboro, N.S.	Wood Schr. Sail	295	Pascagoula Havana, Cuba.	Cuban coast.	Stranded. W. L. Lodner.	Part, ship, \$6,000; cargo, \$3,000.
Feb. 16	Dolly Grey. 122,002	8	Lunenburg, N.S.	Schr. Wood Sail	13	Lockport, N.S. Fishing.	70 miles S.E. of Shelburne, N.S.	Wrecked. R. H. Brown.	Total, \$900.
Feb. 12	Doris M. Pickup. 107,300	12	Annapolis, N.S.	Schr. Wood Sail	373	Gulfport, Miss. Cape de Verde island.	Strait of Florida	Sprung a leak. H. Strange.	Partial.
June 20	Dominion. 116,414	10	Victoria, B.C.	Schr. Wood Steam	10	Victoria, B.C. Victoria, B.C.	Inner harbour, Victoria.	Collided with "St. Lawrence." J. Goodwin.	Partial.
July 4	Doncella. 131,034	6	Vancouver, B.C.	Launch. Wood Gasoline	18-37	Vancouver, B.C. West Vancouver.	Entrance to 1st Narrows, Vancouver harbour.	Collided with "West Vancouver No. 5." D. Smith.	Slight damage, \$10.
Oct 16	Dora 90,871	28	Parrsboro, N.S.	Schr. Wood Sail	63	Parrsboro, N.S. Little River, N.S.	Musquash harbour, N.B.	Damaged by sea. L. B. Canning.	Partial, \$100.
Nov. 8	David C. Ritcey 133,812	1½	Bridgewater, N.S.	Schr. Wood Sail	283	Bridgewater, N.S. Philadelphia.	Lat. 38° 47' N. Long. 74° 34' W. N. Atlantic.	Collided with "L. V. Stodlard." C. D. Ritcey.	Partial.



STATEMENT OF WRECKS AND CASUALTIES reported as having occurred to British, Canadian, and Foreign Vessels in Canadian Waters, and to Canadian Vessels in other Waters, from January 1 to December 31, 1914—*Continued.*

Date of Casualty.	Name of Ship and Off. No.	Age of Ship, years.	Registered Port.	How damaged. Iron or wood. Steam or sail.	Register Tonnage.	Port sailed from. Port bound to.	Place where casualty happened.	Particulars of casualty. Name of master.	Lives Lost.	Loss. Total or partial.
Dec.	Drumuir 86,233	12	Victoria, B.C.	.....	1,798	.....	Atlantic ocean. ....	Sank by German cruiser.	..	Total, \$200,000.
Jan. 15	Essington. .....	1	West Hartlepool, G.B.	Steam	868	St. John, N.B.	St. John harbour, Dominion Coal Co. wharf.	Damaged by fire. J. Stevenson.	.....	Partial, \$400.
Jan. 17	Edith Marguerite 126,391	5	Lunenburg, N.S.	Schr. ....	95	Torrinega, Spain. Lunenburg, N.S.	Lat. 37° 61' N. .... Long. 64° 7' W. N. Atlantic.	Sprung a leak. .... S. Huisinelman.	.....	Partial.
Jan. 20	Edgantine. ....	13	Gloucester, Mass.	Schr. .... Wood Sail	56	Gloucester. .... Fishing.	Taylor's head, N.S.	Stranded. .... A. L. Conrad.	.....	Total, ship, \$5,000; cargo, \$800.
Jan. 21	Ethel Clarke 94,708	20	Bear River, N.S.	Bgte. .... Wood Sail	397	Mobile. .... Barbadoes.	Lat. 28° 51' N. .... Long. 74° 28' W. N. Atlantic.	Sails and part of deck load carried away. J. W. Chute.	.....	Partial.
April 11	Edward P. 103,720	15	St. John, N.B.	Schr. .... Wood Steam	26	St. John, N.B.	Rapids in Fall, St. John harbour.	Foundered. .... W. E. B. Ferris.	.....	Total, \$600.
April 19	Eastholm. .... 134,071	1	Vancouver, B.C.	Schr. .... Wood Steam	117-77	Van Anda, B.C. Tacoma, U.S.A.	Yellow island, San Juan channel, U.S.A.	Stranded. .... A. Growlund.	.....	Partial, \$4,000.
May 9	Empress of Ireland 123,672	8	Liverpool, G.B.	Schr. .... Steel Steam	8,028	Quebec. .... Liverpool.	Off Cock Point buoy, St. Lawrence river.	Collided with "Storstad" and sank. H. G. Kendall	1,042	Total, \$2,000,000.
June 11	Elsie M. Walters. 122,318	6	Lunenburg, N.S.	Schr. .... Wood Sail	96	Labaye, N.S. Fishing.	Big Lorraine head, N.S.	Stranded. .... J. Walters.	.....	Partial, ship, \$7,000; cargo, \$700.
Sept.	Eskimo. .... 126,591	5	Parrsboro, N.S.	Schr. .... Wood Sail	99	St. John, N.B.	St. John harbour. ....	Collided with "Governor Carleton." Chas. Pike.	.....	Part. \$300.
Oct. 16	Effort. .... 75,290	13	Annapolis Royal, N.S.	Schr. .... Wood Sail	63	Parrsboro, N.S. St. Andrews, N.B.	Off Digby, N.S., bay of Fundy.	Sprung a leak. .... J. E. Ogilvie.	.....	Slight damage, \$10.
Oct. 25	Emilien Burke. 122,584	8	Yarmouth, N.S.	Schr. .... Wood Sail	89-76	Woods harbour. .... Georgetown, P.E.I.	Cardigan bay, P.E.I.	Stranded. .... R. Forbes.	.....	Total, \$2,500.



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June 6	Freddie A. Higgins 103,116	34	Charlottetown, P.E.I.	Schr..... Wood Sail	62	..... ..... .....	Off Waterford, P.E.I.	Stranded..... ..... .....	Total.
June 16	Frances Willard 111,401	17	Lunenburg, N.S.	Schr..... Wood Sail	84	Bay of Island, Nfld.	Boston harbour.....	Collided, with coal chutes. P. Young. Stranded. D. Mader.	Partial.
Aug. 3	Flo F. Mader..... 103,743	18	Lunenburg, N.S.	Schr..... Wood Sail	99-67	Moser's river, N.S.	Moser's river.....	Stranded..... ..... .....	Part, \$400.
Aug. 29	Floriston..... 110,335	15	Newcastle, G.B.	Schr..... Steel Steam	2,235	New York. Montreal. Avonmouth.	Lat. 40° 34' N. Long. 58° 38' W. Gulf St-Lawrence.	Collided with berg & stranded. A. E. Kennedy.	Part.
Oct. 12	Floriston..... 110,335	15	Newcastle, G.B.	Schr..... Steel Steam	2,255	Montreal..... Avonmouth.	Lat. 45 N..... Long. 53 W. Nova Scotia coast.	Stranded..... A. E. Kennedy.	Total, ship, \$300,900; cargo, \$125,000.
Nov. --	Formica.....	.....	.....	Barque.....	.....	.....	Ingramport, N.S.	Collided with "W. N. Zuicker". Missing.....	Part., \$2,700.
Jan. 7	Grand Falls..... 126,661	3½	Shelburne, N.S.	Schr..... Wood Sail	113-48	Harbor Breton, Nfld. Oporto, Portugal.	No. Atlantic.....	.....	Total.
Jan. 12	Greta..... 107,972	14	Dorchester, N.B.	Schr..... Wood Sail	146	South Amboy, N.Y. St. John, N.B.	Three miles E.N.E. of Half Moonshoal, U.S.A.	Foundered..... C. A. Berryman.	Total, ship, \$3,500; cargo, \$1,370.
Feb. 12	Governor Foss.....	3	Gloucester, Mass.	Schr..... Wood Sail	88	Gloucester..... Fishing.	30 miles S.E. of cape Sable.	Main boom gaff broken. E. Thompson.	Partial, \$150.
July 22	Grace Darling..... 1,116	13	Parrsboro, N.S.	Schr..... Wood Sail	97-38	Windsor, N.S. Freeport, N.S.	South Entrance to Grand passage, bay of Funny, N.S.	Stranded..... F. W. King.	Partial, ship, \$3,000; cargo, \$300.
Oct. 9	Georgetown.....	.....	American.....	.....	.....	.....	Near Becancourt, P.Q.	Stranded.....	Part.
Nov. 3	Gladstone.....	5	Norwegian.....	..... Steel Steam	3,087	North Sydney Montreal.	Montreal harbour...	Collided with scow.. H. Jonassen.	Slight damage.
Nov. 26	Glendene..... 131,839	3	Whitby.....	Schr..... Steel Steam	2,428	Sydney, N.S. Montreal.	3 miles below Three Rivers, St. Law- rence river.	Stranded..... F. Coner.	Partial.
Dec. 12	Gordon M. Hollett 12,664	4	Shelburne, N.S.	Schr..... Wood Sail	99	Boston, Mass. St. Pierre Mique- lon.	Lower Middle.....	Stranded..... L. Rowe.	Partial.
Jan. 12	Harry Miller..... 116,721	9	St. John, N.B.	Schr..... Wood Sail	246	Perth Amboy, N.Y. St. John, N.B.	Off Nantucket shoal, U.S.A.	Damaged in gale.....	Partial.
April -	Harry..... 100,119	22	Parrsboro, N.S.	Schr..... Wood Sail	396	..... Advocate harbour, N.S.	Entrance to Port..... Greville br., N.S.	Stranded..... W. H. Smith.	Part, \$500.
May 4	Hochelega..... 132,819	2	West Hartlepool, G.B.	Steel Steam	2,601	Montreal..... Sydney, N.S.	Brion's island..... Magdalen islands.	Set out of course by current. W. S. Tudor.	Part.



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Date of Casualty.	Name of Ship and Off. No.	Age of Ship, years.	Registered Port.	How rigged. Iron or wood. Steam or sail.	Register Tonnage.	Port sailed from. Port bound to.	Place where casualty happened.	Particulars of casualty. Name of master.	Lives lost.	Loss. Total or partial.
May 18	Harry..... 100,119	22	Parrsboro, N.S.	Schr. .... Wood Sail	396	Advocate harbour, N.S. New York.	Advocate harbour, bay of Fundy, N.S.	Stranded..... W. H. Smith.	.....	Part, \$500.
May 26	Honoreva .....	....	Bristol .....	..... Iron Steam	867	Erie, Pa..... Anticosti.	Chicoutimi, Sague- nay river.	Stranded..... R. H. Swift.	.....	Part.
June 5	Hercules .....	23	Chatham, N.B.	Schr..... Sail	10	..	Off Coast of Ship- pigan.	Wrecked.....	.....	Total.
July 18	Harold C. Beacher.	32	American .....	Schr..... Wood Sail	306	New York..... Sydney, N.S.	Lat. 45° N..... Long. 64° W. East- ern coast of N.S.	Stranded .....	.....	Total.
Nov. 14	Harry B .....	15	Charlottetown .....	Schr..... Wood Sail	67	Crapaud, P.E.I.... Sydney, N.S.	Pictou harbour, N.S.	Collided with "Dic- tator".	.....	Total, ship, \$2,500; cargo, \$1,800.
Nov. 21	Hendon Hall..... 112,433	14	West Hartlepool, G.B.	Schr..... Steel Steam	2,588	Avonmouth..... Montreal.	Trinity bay..... St. Lawrence river.	Stranded..... W. F. Trott.	.....	Total.
Dec. 23	Hugh John..... 111,416	14	Halifax, N.S.	Schr..... Wood Sail	119	Pictou, N.S. .... Sherbrook, N.S.	Off Liscomb, N.S.	Stranded..... J. McKinley.	.....	Total.
Sept. 14	Ivernia..... 110,643	14	Liverpool.....	Schr..... Steel Steam	9,117	.....	Below Father pt .....	Stranded.....	.....	Partial.
June 5	James Ryan..... 83,303.	32	Port Medway, N.S.	Schr..... Wood Sail	48	.....	Cape Egmont, P.E.I.	Stranded..... W. Andersson.	.....	Total.
July 18	Jeanne A. Pickles. 126,016.	5	Annapolis Royal.	Schr..... Wood Sail	299	Barbados, St. John, N.B.	Chance Harbour ledges, N.B.	Stranded..... C. S. Richard.	.....	Total, ship, \$20,000; cargo, \$15,000.
July —	Jennie B. Hodgdon .....	....	American.....	Schr..... Wood Sail	85	Gloucester, Mass., Caraquet, N.B.	Lower Caraquet, N. B.	Stranded..... J. Burton.	.....	Partial.
Aug. 19	James Carruthers. 134,748.	2	Grimsby, G. B.	Ketch..... Steel Steam	97	Prince Rupert, B.C.	Lat. 56.15 N..... Long. 132.57 W. Alaska.	Stranded. .... Chas. Kingstall.	.....	"



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Sept. 8	John R. Bradley	.....	Gloucester, Mass.	Schr. .... Wood Sail	80	Port Daniel, Perce...	Perce, P.Q. ....	Damaged by seas.... D. Arseneau.	.....	Part, \$2,000.
Sept. 11	James Carruthers.. 134,718.	2	Grimsby.....	Ketch..... Steel	97	Prince Rupert, B.C.	Red bay, Alaska...	Stranded.. .... C. Kingstall.	.....	Part.
Nov. 5	Jacqueleine.. .. 134,137.	6	Quebec. ....	Schr..... Wood Sail	70 50	Quebec. .... Perce.	May island, gulf St Lawrence.	Foundered..... E. Duchene.	3	Total.
Nov. 14	Fust..... 126,592.	4	Parrsboro, N. S....	Schr..... Wood Sail	299	Port Grenville, N.S. New York.	Vineyard haven. .... U.S.A.	Collided with..... 'Rebecca M. Wells' J. N. Pettis.	.....	Partial, \$200.
Nov. 18	J. L. Cobwell..... 111,510.	13	St. John, N.B. ....	Schr..... Wood Sail	99	Gaspereau, P.E.I.... Port Mulgrave.	Canso harbour, N.S.	Stranded..... J. Jimmo.	.....	Total, \$200.
Jan. 11	Karluk... .. 133,932.	30	Ottawa, Ont. ....	..... ..... Steam	208	Victoria, B.C..... Nome, Alaska	Lat. 72 S..... Long. 173 W. 60 M. N. by E. of Herald island.	Lost.. .... Capt. Bartlett.	.....	Total, \$300,000.
May 12	Kendal Castle.... 131,282.	5	Liverpool.....	Schr... .. Steel Steam	2,138	Louisburg, N.S. .... Montreal.	Between Mersey point and St. Paul island, gulf St Lawrence.	Damaged by ice..... R. T. B. Harvey.	.....	Partial.
May 17	Kwasind. .... 104,263.	20	Quebec.....	Schr..... Steel Steam	1,376	Dunkirk..... River Tyne.	Haseboro lightship.	Collided with "Sir... William Stephan- son". S. Shafter.	.....	Partial.
June 5	Kolm. ....	48	Machias, Me. ....	Schr..... Wood Sail	.....	Magdalen islands ... Machias, Me.	15 miles S.E. of Sambro, N.S.	Foundered .....	.....	Total.
July 18	King Josiah.....	6	Parrsboro, N.S....	Schr... .. Wood Sail	147	Boston, Mass..... Hantsport N.S.	Moosepick, Me.....	Stranded.. .... A. Faulkner.	.....	Partial, \$1,500.
July 18	King Malcom. ....	29	Italian.....	Bgte..... Iron Sail	1,233	Trapani .....	High head, bay of Fundy.	Stranded.. .... F. Mortold.	.....	Part.
Jan. 17	Ladysmith. .... 112,324.	12	Bridgetown Bdos..	Schr..... Wood Sail	596	Ingramport, N.S. ... New York.	Lat. 40 55 N..... Long. 63 46 W. No. Atlantic.	Foundered. .... R. Lohmes.	.....	Total, ship, \$12,000; cargo, \$8,000.
Jan. 21	La Glaciale..... 90,536.	29	Montreal. ....	Ferry .....	74	Three Rivers..... Nicolet, P.Q.	Three Rivers har- bour.	Foundered .....	.....	Total, \$60,000.
Feb. 16	Lawson..... 124,970.	6	Parrsboro, N.S....	Steam. Schr..... Wood Sail	274	Halifax, N.S..... Lunenburg, N.S.	Lunenburg harbour..	Stranded.. .... W. G. Digon.	.....	Partial, \$2,200.
Feb. 27	Lyra .....	31	Parrsboro, N.S....	Schr.. .... ..... Sail	99	..... .....	East of Flower creek, N.S.	Stranded.. ....	.....	No. damage.



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June 7	Lewis K. Cottingham 149,616.	31	Rockland, Me.	Schr. Wood Sail	464	Rockland, M. Advocate hr., N.S.	Advocate harbour, bay of Fundy, N.S.	Stranded... F. Curry.	.....	Partial, \$300.
June 16	Luella 117,186	9	Chatham, N.B.	Schr. Wood Sail	99	Louisburg, N.S. Stonehaven, N.B.	S. Cabbage cove... N.S.	Stranded... F. Murphy.	.....	Total, ship, \$4,000; cargo, \$700.
June —	Lizzie D. 100,972.	21	Chatham, N.B.	Schr. Sail	11	.....	.....	Wrecked.. .....	.....	Total.
Aug. 30	Lorne 41,809.	12	Victoria, B.C.	Schr. Wood Steam	159	Victoria, B.C. Vancouver, B.C.	San Juan strait... Hare strait.	Stranded... M. T. Cutter	.....	Total
Sept. 21	Lahave 53,472.	29	Lunenburg, N.S.	Wood Steam	34	Halifax, N.S. Musquodoboit.	Chebueto bay.....	Burnt... R. Hiltz.	.....	Total.
Oct. 23	Lyra 88,265.	31	Parrsboro, N.S.	Schr. Wood Sail	99	Parrsboro, N.S.	Parrsboro river.....	Stranded.....	.....	Partial. \$150.
Nov. 20	Linelight 126,065.	6	Charlottetown, P.E.I.	Schr. Wood Sail	126	St. Pierre Souris, P.E.I.	Wine harbour, N.S.	Stranded... A. Buskey.	.....	Total. \$5,000.
Dec. 22	Levuka 100,519.	21	Parrsboro, N.S.	Schr. Wood Sail	76	St. John, N.B. Walton, N.B.	Walton, Minas basin, N.S.	Stranded... F. Ogilvie.	.....	Partial. \$200.
Dec. 30	Lorne B. Snow 121,816.	8	Digby, N.S.	Schr. Wood Sail	84	Digby, N.S. Fishing.	Annapolis basin N.S.	Stranded.....	.....	Partial. \$7,000.
Feb. 3	Moran 111,615.	13	Lunenburg, N.S.	Schr. Wood Sail	99	Liverpool, N.S. Barbados.	.....	Sprung a leak... G. Schreder.	.....	Partial.
Feb. 23	M. T. Co. No. 2. 130,803.	27	Vancouver, B.C.	Tow Wood Steam.	22-23	False Creek, B.C. Port Moody.	Port Moody... T. Lawrence.	Burnt... T. Lawrence.	.....	Total. \$9,000.



Mar. 1	Mina German..... 122,585.	5	Yarmouth, N.S....	Schr..... Wood Sail	148	Meteghan, N.S..... Boston, Mass.	25 miles N. E. of Thatches island.	of Foretop mast broken and outer jib car- ried away. F. A. German.	Partial. \$125.
April 1	Montreal ..... 113,373.	14	Liverpool.....	Schr..... Steel	5,552	London ..... St. John, N.B.	Lat. 41° 55' N. Long. 55° 10' W. No. At- lantic.	Rudder stock carried away. F. Griffiths.	Partial.
April 28	Montfort. .... 110,568.	14	Liverpool.....	Schr..... Steel Steam	4,125	London ..... Montreal.	Beaumont banks, St. Lawrence river.	Stranded..... W. Davidson.	Slight damage.
May 6	Lightship No. 19.....	.....	Great Britain.....	..... Steel Steam	.....	Glasgow, ..... Halifax, N.S.	Off Liscomb, N.S....	Lost ..... .....	Total. 19
May 12	Manchester Inventor... 113,117.	12	Manchester .....	Schr..... Steel	2,775	Manchester..... Montreal.	Lat. 48° 26' N. Long. 49° 35' W. No. At- lantic	Damaged by fire..... T. W. Bolton.	Partial.
May 22	Marion E. Turner 113,117.	12	Portland, Me.....	Schr..... Wood Auxiliary	45	Portland ..... Fishing.	Entrance to Shel- burne harbour, N.S.	Stranded ..... C. A. Turner.	"
June 11	Mina German..... 122,585.	5	Yarmouth, N.S....	Schr..... Wood Sail	148	Boston.....	Boston harbour .....	Stranded..... Thos. German.	"
Aug. 1	Max C ..... 122,309.	7	Lunenburg, N.S...	Schr.....	46	.....	Sambro island, N.S.	Stranded.....	"
Aug. 19	Miner ..... 122,126.	34	Liverpool, N.S....	Schr..... Iron Steam	32 21	Liverpool, N.S..... Main à Dieu, N.S.	Cape Bret on coast	Foundered..... Jas. McLeod.	Total. \$2,000.
Aug. 28	Monkshaven ..... 131,333.	3	Whithy, G.B. ....	Schr..... Steel Steam	2,097	..... Montreal.	Off Ste. Pelicite, St. Lawrence river....	Stranded ..... C. Melburn	Partial. \$650.
Sept. 13	Marion C ..... .....	6	Liverpool, N.S....	Sloop..... Wood Sail	10 92	Port Medway, N.S. .....	Middle island, Port Medway.	Stranded..... R. Hiltz.	Total.
Sept. 18	Montmagny ..... 126,457.	5	Sorel, P.Q. ....	Schr..... Steel Steam	723	Quebec..... Gulf Light Houses	Near Crane island, St. Lawrence river	Collided with "Lin- gan." F. X. Pouliot.	Total. \$250,000.
Oct. 4	Mark A. Tobin...	2	Lunenburg, N.S..	Schr..... Wood Sail	99 17	Lunenburg, N.S.... Fishing.	Burges, Nfld.....	Stranded ..... M. A. Tobin	Partial. \$1,500.
Oct. 5	Mary A.....	11	St. Johns, Nfld...	Schr..... Wood Sail	49	Halifax, N.S..... Cheticamp, N.S.	Margaret, N.S. ....	Stranded..... H. Theriault.	Partial. Ship, \$450. cargo, \$345.
Oct. 16	Muriel..... 116,709.	13	Quebec.....	Tug..... Wood Steam	10 77	Quebec..... Rimouski.	1 mile above Madam island, St. Law- rence river.	Collided with "Bat iscan." N. Levesque.	Total. \$10,000.
Nov. 6	Mary F. Fleming 133,803.	1	Lunenburg, N.S...	Schr..... ..... Sail	24	Canso, N.S.....	East side of Liscomb island, N.S.	Stranded..... Capt. Zinck.	Partial.



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Nov. 11	Montcalm 117,069.	36	Ottawa.	Steel Steam	526	Quebec harbour.	Quebec harbour.	Collided with "Lauzon." Capt. Pelletier. No damage.	.....	"Lauzon," \$1,200, partial.
Jan. 29	Nina 112,104.	11	Port Medway, N.S.	Schr. Wood Sail	101-10	Port Medway, Liverpool, N.S.	3 miles E. by N. from Coffins island, N.S.	Foundered, T. Rhodsnizer.	.....	Total, \$350.
Mar. 2	Newington 110,697.	15	Vancouver, B.C.	Tow Wood Steam	76-15	Victoria, B.C. (cruising.	Swanson bay, B.C.	Collided with "Prince John." H. R. Belton.	.....	Partial.
May 14	Nat Meader 130,229.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aug. 27	Nellie M. Snow 116,299.	43	Charlottetown, P.E.I.	Schr. Wood Sail	75	Pictou, N.S. Pownal bay, Northumberland st., P.E.I.	Pownal bay.	Stranded Chs. Dunn.	.....	Total. Ship, \$500; cargo, \$350.
Sept. 16	Norhilda 127,079.	1	Bristol	Steel Steam	645	.....	Near Madam island, St. Lawrence river.	Stranded	.....	Partial.
Dec. 30	Navarra 128,283.	5	Glasgow	Schr. Steel Steam	2,847	St. John, N.B. Havre, France	Holmes island, N.S.	Stranded R. Millekan.	.....	Total.
Jan. 8	Oregon 112,106.	11	Lunenburg, N.S.	Schr. Wood Sail	99-31	Shelburne, N.S. Bridgetown, B'dos.	North Atlantic.	Missing	6	"
April 17	Oricle 88,427.	30	St. John, N.B.	Schr. Wood Steam	124	Weymouth, N.S. Scituate, Mass.	Bass Harbour, Me.	Stranded A. Wilson.	.....	Total. Ship, \$1,200; cargo, \$2,000.
" 21	Orontes 105,040.	19	Vancouver, B.C.	Ketch Steel Steam	76-27	Vancouver, B.C. Kilderman.	Vancouver.	Collided with "No. 3, North Vancouver."	.....	Slight damage.
July 21	Oberon 1,241.	7	Liverpool	Schr. Steel Steam	3,161	Port Hartford, Cal. Vancouver, B.C.	Vancouver.	Collided with "Niagara." S. Cooper.	.....	Partial.



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Jan. 25	Princess Sophia 130,620.	1½	Victoria, B.C.	Steel	1,465-99	Skagway, Alaska Vancouver, B.C.	Johnstone str.	Stranded..... C. Campbell.	Slight damage.
Mar. 2	Prince John 129,472.	4	Prince Rupert, B.C.	Steam	540	Prince Rupert Swanson bay.	Swanson bay, B.C.	Collided with "New- ington." C.W. Wearnmouth.	No damage.
April 10	Percy B 133,892.	1	Parrsboro, N.S.	Schr.	281	Port Clyde, N.S. New London.	North Atlantic.	Stranded.....	Slight damage.
" 19	Prince Albert 99,584.	22	Prince Rupert, B.C.	Steam	587	Vancouver, B.C. Prince Rupert.	Baynes sound, B.C.	Stranded..... W. L. Morehouse.	" "
May 23	Princess Marquina 133,769.	1	Victoria, B.C.	F. & A.	978-60	Victoria, B.C. Kyuquot, B.C.	WhiteCliff, Kyuquot sound.	Stranded..... E. Gillam.	Partial.
" 28	Princess Sophia 130,620.	3	Victoria, B.C.	F. & A.	1,465	Victoria, B.C. Vancouver, B.C.	Mouth of Fraser river, gulf of Georgia.	Loss of propeller blades. Capt. Robertson.	"
June 27	Pillar de Larrinaga 115,328.	12	Liverpool	Schr.	2,690	Newport News, U.S.A.	Montreal harbour	Collided with "Buda pest." F. de Longe.	"
July 19	Princess Patricia 115,685.	12	Victoria, B.C.	2 Poles	535-42	Nanaimo, B.C. Nanaimo, B.C.	First Narrows, Van- couver.	Stranded..... J. N. P. Ritchie.	"
Aug. 18	Prince Albert 99,584.	22	Prince Rupert, B.C.	Schr.	586-60	Prince Rupert, B.C. Prince Rupert.	Hecate strait, B.C.	Stranded..... D. Mackenzie.	Total, \$90,000.
" 26	Princess Victoria 115,953.	11	London	Schr.	785-33	Victoria, B.C. Seattle, Wash.	½ mile north of Point no Point, Puget sound.	Collided with "Ad- miral Simpson." P. J. Hickey.	Partial.
Sept. 26	Princess Patricia 115,685.	12	Victoria, B.C.	2 Poles	535-42	Vancouver, B.C. Nanaimo, B.C.	C.P.R. wharf, Van- couver.	Port shaft broken. J. N. P. Ritchie.	"
Oct. 19	Pansy 72,316	15	Parrsboro, N.S.	Schr.	76	Maitland, N.S. Parrsboro, N.S.	Off Five islands, N.S.	Stranded..... T. M. Dodsworth.	Part, \$100.
Oct. 27	Princess Royal 121,988	7	Victoria, B.C.	Schr.	981	Granby Bay, B.C. Vancouver.	Jeddiah island, strait of Georgia, B.C.	Stranded..... S. L. Dawes.	Part.
Nov. 18	Princess Patricia 115,685	12	Victoria, B.C.	2 poles	585	Vancouver, B.C. Nanaimo, B.C.	Vancouver harbour.	Collided with "Ven- ture". J. N. P. Ritchie.	Part.
Dec. —	Photinia 133,314	1½	NorthShields, G.B.	Schr.	2,835	Hull New York.	North Atlantic.	Loss of one propeller blade. R. A. Goodredge.	Part.
Dec.	Percy B 133,892	2	Parrsboro, N.S.	Schr.	281	New York St. John, N.B.	Windsor river, N.S.	Stranded..... T. K. Bentley.	Part, \$1,400.



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Oct. 11	Quebec..... 122,405	7	Montreal	Steel Steam	2,013	Montreal Quebec.	Lake St. Peter.....	Collided with "W. H. Dwyer."	....	Part.
April 7	Rolle..... 112,326	12	Parrsboro, N.S.	Schr..... Wood Sail	54	Parrsboro, N.S. Digby, N.S.	Bay of Fundy, N.S.	Loss of sails L. Howe.	....	Part, \$150.
May 22	Royal Edward..... 125,656	7	Toronto, Ont	Schr..... Steel Steam	5,669	Montreal Avonmouth.	110 miles N.E. of Cape Race.	Collided with ice burg. P. W. Walton.	....	Part.
July 18	Ragnar.....	6½	Norwegian	Steel Steam	1,023	Chester, Penn St. Anns, N.S.	Lat. 46 N..... Long. 64 W. No. Atlantic.	Stranded.....	....	Total.
Aug. 18	R. E. Sullivan..... 36	22	Ogdensburg, N.Y.	Barge Wood Sail	117	Rouse Point, N.Y. Sorel, P.Q.	Beloeil..... Richelieu river.	Stranded..... O. D. Samschagrin.	....	Part, \$1,350.
Aug. 21	Rewa..... 100,511	22	Parrsboro, N.S.	Schr..... Wood Sail	123	South Amboy, N.Y. Hantsport, N.S.	Margaretville, N.S.	Stranded..... A. H. Gibson.	....	Part.
Sept. 26	Roy Penny..... 126,572	4	Port Hawkesbury, N.S.	Schr..... Wood Sail	26	Port Hood, N.S. Petitdegrat, N.S.	Port Hood harbour, N.S.	Stranded..... K. Smith.	....	Total, \$1,750.
Oct. 4	Rodney Parker..... 110,194	10	London	Schr..... Wood Sail	380	Maitland, N.S. Boston, Mass.	Off Spencers island, N.S.	Sprung a leak..... G. Greenlaw.	....	Part, \$130.
Nov. 11	Rosanno..... 127,142	5	West Hantspool, G.B.	Schr..... Steel Steam	2,365	Hull..... Montreal.	Near Buoy 65 L, lake St. Peter, St. Lawrence R.	Collided with "Bar tiscan".	....	Slight damage.
Jan. 21	Silver Leaf..... 112,329	11	Parrsboro, N.S.	Schr..... Wood Sail	283	Apalachicola, Fla. Funchal, Madeira.	Logger Head reef, Fla.	Stranded..... C. W. Salter.	....	Part, \$800.
Jan. 25	Simla..... 97,766	24	Vancouver, B.C.	Schr..... Steel Sail	2,093	Vancouver..... San Francisco.	20 miles W. of cape Mendocino, Pacific Ocean.	Damaged in gale..... W. H. Moore.	....	Part, \$3,000.
April	Southern..... 132,714	2	London	Schr..... Steel Sail	2,935	Shields, G.B. Sydney, N.S.	Between cape Race and Cape Breton.	Damaged by ice.....	....	Part.



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April 28	Saturnia 129,489	3	Glasgow	Sehr.	5,493	Glasgow Montreal	South Traversee, St. Lawrence R.	Stranded.	Part.
May 9	Sir Louis	16	Charlottetown, P. E.I.	Steam Schr.	86	Halifax, N.S. Malpeque, P.E.I.	1 mile outside of point Brule, N.B.	Foundered. H. Murray.	Total. \$2000. Cargo, \$3,000.
May 26	Speculator 112,108	11	Lauenburg, N.S.	Schr. Wood Sail	99-29	Louisburg, N.S. Halifax, N.S.	Framboise, N.S.	Stranded. A. Bagnell.	Total. Ship, \$2,500. Cargo, \$3,900.
May 29	Stoistad	3	Norwegian	Schr. Wood Sail	3,561	Sydney, N.S. Montreal	2 miles N.E. of Cook Point buoy, St. Lawrence R.	Collided with "Kin- ross of Ireland". Capt. Anderson.	Part, \$40,000.
June 10	Spurnaker 77,731	35	St. John, N.B.	Schr. Wood Sail	21	Parrsboro, N.S. Parrsboro, N.S.	Off Parrsboro light- house.	Foundered. H. Murray.	Total, \$100.
June 20	St. Lawrence	11	St. John, Nfld.	Sloop Iron Steam	21	Victoria, B.C. Victoria, B.C.	Inner Harbour, Vic- toria.	Collided with "Do- minion".	Part.
July —	Stanley						Charquet island, N.B.		Part.
July	Scotia 111,865		Ottawa		324		Mulgrave, N.S.	Collided with wharf.	Part.
July 24	Saskatoon 123,965	4	Sunderland	Steel Steam	1,118	Ellis Bay, Anticosti Island. Montreal	Near Portneuf, St. Lawrence river.	Stranded. H. Houseberger.	Part, \$35,000.
Oct. 3	Shenandoah 102,111	21	Liverpool	Schr. Steel Steam	2,492	London. St. John, N.B.	Little Musquash, bay of Fundy, N.S.	Stranded. W. McLee.	Part, \$3,000.
Nov. 9	Sharon					Sydney. Newport, Wales.		Missing W. McLee.	Total.
Nov. 14	St. Anthony 107,563	15	Parrsboro, N.S.	Steam Schr. Wood Sail	100	St. John, N.B. Schroon, N.S.	Advocate harbour, N.S.	Stranded. W. H. Gates.	Total. Ship, \$2,500. cargo, \$3,900.
Nov. 16	St. Bernard 107,570	13	Parrsboro, N.S.	Schr. Wood Sail	273	Parrsboro, N.S. Salem, Mass.	Beaver harbour, N.B.	Collided with "F.C. French". A. Tower.	Part.
Nov. 22	Sir Wilfrid 42,987	14	Pictou, N.S.	Schr. Wood Sail	39	Glace Bay, N.S.	20 yds. outside Breakwater, Glace bay.	Stranded. W. D. Jamieson.	Total, \$500.
Nov. 24	St. Maurice	18	Parrsboro, N.S.	Schr. Wood Sail	272	Eatonville, N.S. New York.	Headings beach, U. S.A.	Stranded. J. T. Salter.	Part, \$1,000.
Jan. 11	Tobacco 126,036	6	Liverpool, N.S.	Schr. Wood Sail	99	St. John, Nfld.	Lat. 41 16 N Long. 30 14 W. No. Atlantic.	Foundered. J. Harwick.	Total, \$7,000.
Mar. 10	Trebia 115,272	12	St. John, Nfld.	F. & A. Steel Steam	2,343	Cardiff Hamburg.	River Plate, Argen- tine.	Stranded. F. S. Jones.	Part.



STATEMENT OF WRECKS AND CASUALTIES reported as having occurred to British, Canadian and Foreign Vessels in Canadian Waters and to Canadian Vessels in other Waters, from January 1 to December 31, 1914—Continued.

Date of Casualty.	Name of Ship and Off. No.	Age of Ship, Years.	Registered Port.	How rigged. Iron or wood. Steam or sail.	Register Tonnage.	Port sailed from. Port bound to.	Place where casualty happened.	Particulars of casualty. Name of master.	Lives lost.	Loss. Total or partial.
April 28	Thyra Menier.... 127,100	2	Bristol.....	Schr..... Steel	794	Macoris .. San Domingo, Montreal.	Cape Breton coast....	Damaged by fire ... F. S. Jones.	.....	Part.
Oct. 10	Thyra Menier.... 127,000	2	Bristol.....	Schr..... Steel	794	Ellis island, Anticosti island, Montreal.	White island, St. Lawrence river.	Stranded..... F. S. Jones.	.....	Part.
Nov 12	Tees .....	31	Victoria, B.C....	F. & A. Steel	440 62	Victoria, B.C..... Bamfield.	Alberni canal. . .	Damaged in storm.. E. Gillis.	.....	Part.
Feb. 25	Unity.....	..	Bridgetown, Bdos.	.....	.....	Shelbourne, N.S..... Fishing.	North Atlantic....	Abandoned at sea... A. Longmuir.	.....	Total.
Dec. 15	Utah & Eunice. 94,694	16	Digby, N.S. ....	Schr..... Wood	33	Parrsboro, N.S.... Bass River, N.S..	Big Bass river, N.S.	Stranded..... W. Ogilvie..	.....	Part.
Jan. 25	Vadso..... 124,077	22	Victoria, B.C. .	Schr..... Steel	698 11	Victoria..... Granby Bay.	Lat. 54° 53' N. Lon. 130° 30' W. Portland inlet.	Stranded..... J. Richardson.	.....	Total, \$8,000.
Mar. 30	Virginian .....	10	Parrsboro, N.S....	Schr..... Wood	100	Diligent River, N.S. St. John, N.B.	Entrance to Diligent river, Minas chan- nel, N.S.	Stranded..... M. Morris.	.....	Part.
June 13	Vedder..... 126,273	5	New Westminster, B.C.....	..... Wood	60 64	.....	20 miles from Wrang- el, Alaska.	Burnt .....	.....	Total, \$6,000.
April 16	Vera B. Roberts.. 103,736	16	Parrsboro, N.S.	Schr..... Wood	124	Clementsport, N.S. Cutter, Me.	Clementsport, N.S.	Sprung a leak..... M. Benjamin.	.....	Part.
Oct. 9	Victoria .....	22	Victoria, B.C. .	Schr..... Wood	31 17	Victoria..... Victoria.	Hornby island, B.C.	Sprung a leak and sank. M. Pike.	.....	Total, ship, \$16,250; cargo, \$1,600.
Dec. 15	Vera B. Roberts.. 103,736	16	Parrsboro, N.S.	Schr..... Wood	124	Boston, Mass..... Beaver Harbour, N.S.	Tenantsharbour, Me.	Stranded..... M. Benjamin.	.....	Part. \$200.
" 18	Venture .....	4	Victoria, B.C. .	Schr..... Steel	580	Vancouver, B.C.... Vancouver.	Burrard inlet, B.C.	Collided with Prin- cess Patricia. J. Park.	.....	Slight damage.



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May 23	We Lead. 130,798	3	Vancouver, B.C.	Launch. Wood Gasoline Motor Wood	6-41	Vancouver. Coastwise.	Howe sound, B.C.	Burnt. D. Todd.	Total, \$4,000.
July 4	West Vancouver. 134,086	1	Vancouver, B.C.		48-57	Vancouver. West Vancouver	Vancouver harbour.	Collided with "Doncella". P. H. Johnston.	No damage.
Aug.	Yarborough.						Miramichi, N.B.	Stranded.	Part.
Nov. 13	Zeeland.	13	Liverpool	4 mts. Steel Steam	7,510	Liverpool. Montreal.	Isle aux Raisins, St. Lawrence river.	Stranded. R. O. Jones.	Part.

## INLAND WATERS VESSELS.

July 2	Assiniboia. 125,984	7	Montreal, P.C.	Steel Steam	2,486-36	Port McNicoll, Ont. " " "	Bad Neighbourhood, Georgian bay, Ont.	Stranded. J. McCarnel.	Partial.
Aug. 25	Alva D. 126,657	2	Midland, Ont.	Tug. Wood	14-81	Little Current. Collins Inlet.	Between Beaverstone and Collins island.	Burnt. P. Duouis.	Total, \$2,500.
Sept. 20	Arabian. 101,394	2	Hamilton, Ont.	Schr. Steel	770-33	Port Colborne, Ont. Montreal.	Main Duck island, Lake Ontario.	Stranded. J. Delaney.	No damage.
Oct. 24	Abernstay. 130,386	1	Amherstburg, Ont.	Dredge. Wood Sail	260-55		Pelée island, Ont.	Burnt.	Total, \$20,000.
April 28	Buffalo.						Opposite Cedar point	Stranded	Partial.
May 10	Bickerdike. 121,784	20	Ottawa, Ont.	Steam Schr. Steel Steam	863-70	Port William, Ont. Montreal.	½ mile N. E. of Cas- cades point, lake St. Louis.	Stranded. D. Charland.	"
May 11	Belleville. 122,070	9	Montreal, P. Q.	Paddle Iron	606	Montreal. Toronto, Ont.	Belleville harbour.	Stranded. W. Bloomfield.	No damage.
July 8	Beaverton. 125,440	6	Newcastle	Steam Schr. Steel Steam	1,357-03	Port Colborne, Ont. Montreal.	Below Lock 21, Cornwall canal.	Collided with bank of canal. O. W. Patterson.	Partial.
Oct. 25	Beaverton. 125,440	6	Newcastle.	Schr. Steel Steam	1,357-03	Port William. Quebec.	Head of Morrisburg canal.	Stranded. O. W. Patterson.	"
Nov. 20	Belleville. 122,070	9	Montreal, P. Q.	Paddle Iron	606		Near Jack straw shoal, St. Lawrence river.	Stranded. W. Bloomfield.	"
Feb. 17	City of Belleville. 71,094	36	Prescott, Ont.	Ferry Steam	63	Ogdensburg, N. Y. Prescott, Ont.	Prescott dock.	Burnt	Total.



STATEMENT OF WRECKS AND CASUALTIES reported as having occurred to British, Canadian, and Foreign Vessels in Canadian Waters, and to Canadian Vessels in other Waters, from January 1 to December 31, 1914—Continued.

Date of Casualty.	Name of Ship and Official No.	Age of Ship, years.	Registered Port.	How Rigged. Iron or wood. Steam or sail.	Register Tonnage.	Port sailed from. Port bound to.	Place where Casualty happened.	Particulars of casualty. Name of master.	Lives Lost.	Loss. Total or partial.
May 20	Calgarian 131,246	1	Port Arthur, Ont.	Schr. Steel	1,301	Montreal. Port Arthur, Ont.	Montreal harbour.	Cargo damaged by fire. P. McKay.	...	Partial.
July 1	Corunna 99,224	23	Montreal, P. Q.	Schr. Steel	791.54	Sydney. Port Arthur.	Cornwall canal.	Plates damaged. J. Macdonald.	...	"
Aug. 9	Collinge 12,591	1	Oswego, N. Y.	Steam Wood	1,280	Oswego Kingston.	Near point Pelee.	Stranded. P. Peterson.	...	Slight damage.
April 29	Dunelm 123,950	7	Sunderland.	Steam Steel	1,481	Buffalo Montreal.	Dixie island, Lake St. Louis.	Stranded. C. R. Alburson.	...	Partial.
June 15	Delver No. 1	6	St. Catharines, Ont.	Dredge.	305	Dalhousie, Ont.	Dalhousie harbour.	Foundered.	...	Total.
Nov. 21	Donald Mac.	...	Port Stanley, Ont.	Steam Tug	...	Toronto, Ont. Port Stanley, Ont.	4 miles E. of Fort Niagara.	Stranded. F. Morgan.	...	Partial.
Oct. 7	Edmonton 122,856	8	Newcastle.	Steam Steel	1,341	Montreal.	Head of Cornwall canal.	Stranded.	...	"
April 20	F. P. Jones 211,084	1	Ogdensburg, N. Y.	Schr. Steel	1,059	Sundusky, Ohio. Montreal.	1 mile S. E. of Cascades point, St. Lawrence river.	Stranded. H. M. Russell.	...	Partial, \$1,000.
Sept. 18	George V 122,295	3	Prince Albert, Sask.	Steam Steel	66	The Pas, Man. Beaver Lake Portage.	Near Cumberland house.	Stranded. G. H. Galway.	...	Partial.
April 24	Georgia	...	...	Steam Barge	...	...	250 yds. below Carleton island light-house, U.S.A.	Stranded.	...	Slight damage.
July 17	Hamiltonian 131,052	2	Port Arthur, Ont.	Steel Steam	16,657	Duluth, Minn. Montreal.	Chateaugay shoal.	Stranded. C. B. McIntyre.	...	Part. \$25,000.
April 29	Julia B. Merrill 126,468	7	Kingston, Ont.	Schr. Sail	190	Oswego, N. Y. Kingston, Ont.	Collins bay.	Collided with "Kewatin."	...	Part.



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May	7	J. H. Plummer...	11	Newcastle	Schr.	991	Port Colborne, Montreal.	Near point Pelée light, lake Ontario.	Stranded.	Part.
"	10	J. H. Plummer...	11	Newcastle	Schr.	991	Montreal.	Montreal harbour.	Stranded.	Part.
April	29	Kewatin...	7	Port Hope, Ont.	Schr.	199	Oswego.	Indian point, bay of Quinte.	Collided with "Julia B. Merrill."	Part.
Dec.	3	Keybell...	2	Montreal, P.Q.	Schr.	1,254	Ashtabula, Montreal.	Off Kee's light, lake St. Francis.	Stranded.	No damage.
May	7	Manitoba...	25	Montreal, P.Q.	Schr.	1,699	Port McNicoll.	Soo river.	Collided with "Turret Cape."	Part.
Sept.	9	Mount Cashel...	2	Winnipeg, Man.	Schr.	346	Port William.	Red river, Winnipeg.	Burnt.	Part. \$6,000.
Aug.	11	Oiseau...	1	Ottawa, Ont.	Steam	90	Pembroke.	Near Fraser's landing, Ottawa river.	Sprung a leak.	Part. \$1,500.
May	19	Pueblo...	23	Montreal, P.Q.	Schr.	904 53	Buffalo, Montreal.	Middle of lake St. Louis.	Stranded.	Part.
June	10	Pueblo...	23	Montreal, P.Q.	Schr.	904 53	Montreal, Buffalo.	Lock No. 9, Welland canal.	Collided with gates.	No damage.
Sept.	17	Port Colborne...	5	Newcastle	Schr.	1,305	Dalhousie, Niagara Falls.	Chippawa canal, Niagara river.	Stranded.	Part.
May	21	Quinte Queen...	12	Kingston, Ont.	Schr.	143	Ottawa.	Near Templeton, Ottawa river.	Stranded.	No damage.
June	13	Rhoda...	40	Quebec	Ferry	167 04	Montreal.	Near Laprairie, St. Lawrence river.	Stranded.	Part.
Aug.	4	Robert R. Rhodes...	27	Montreal, P.Q.	Wood Steam	957	"	Cornwall canal.	Collided with "Kenora."	Part. \$15,000.
Sept.	17	Ralph T. Holcomb...	16	Sarnia, Ont.	Steam	165	Cardwell.	Near Brockville, Ont.	Stranded.	No damage.
July	31	St. Laurent...	5	Montreal, P.Q.	Wood Steam	188 77	Montreal, St. Helen's island.	Montreal harbour.	Collided with "Varennes."	Part. \$20.
Aug.	20	St. Joe...	8	Port Arthur, Ont.	Wood Steam	80 01	"	Walsh dock, Port Arthur, Ont.	Damaged by fire.	Part. \$1,500.



STATEMENT OF WRECKS and CASUALTIES reported as having occurred to British, Canadian and Foreign Vessels in Canadian Waters, and to Canadian Vessels in other Waters, from January 1 to December 31, 1914—*Conclude* 1.

Date of Casualty.	Name of Ship and Off. No.	Age of Ship, years.	Registered Port.	How rigged. Iron or wood. Steam or sail.	Register Tonnage.	Port sailed from. Port bound to.	Place where casualty happened.	Particulars of casualty. Name of master.	Lives lost.	Loss. Total or partial.
Sept. 23	Samual Marshall. 107,426	29	Brockville, Ont.	Wood Steam	540	Port Colborne, Ont. Montreal.	Sparrow Howick, U.S.A.	Stranded..... C. A. Mahoney.	...	Part. Ship, \$1,000; Cargo, \$200.
Nov. 2	Shanley..... 126,269	6	Kingston, Ont.	.....	19	Kingston.....	English bay, Ont.	Burnt..... J. Soward.	...	Part. \$2,000.
April 24	T. A. Georgie. .... 112,354	40	Brockville, Ont.	F. & A. .... Wood Barge	757·34	Oswego, N.Y..... Brockville.	Carleton Island shoal.	Stranded.. .. E. Leboeuf.	.....	Part.
Sept. 2	Thomas R. Scott... 116,847	25	Owen Sound, Ont.	..... Wood Steam	240	Warton... .. Owen Sound.	Near Cabot head, Georgian bay.	Foundered..... M. McDonald.	...	Total.
Sept. 24	Toiler. .... 129,767	4	Newcastle...	Schr..... Steel Steam	1,036	Port Colborne. .... Montreal.	Palmera shoal, N.Y.	Stranded..... J. Dix.	.....	Part.
July 24	Valleyfield ..... 69,595	48	Montreal, P.Q...	..... Wood Steam	280·17	Montreal. ....	Montreal harbour...	Collided with "Robert McKay." G. Marion.	.....	Part. \$600.



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**. APPENDIX No. 9.****ANNUAL REPORT OF THE MASTERS AND SEAMEN AND PILOTAGE  
BRANCH.**

To the Deputy Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit the 1914-15 annual report of this branch.

**GOVERNMENT NAVIGATION SCHOOLS.**

During the twelve months ended March 31, 1915, navigation schools were in operation for longer or shorter periods at Carleton, New Richmond, and Quebec, Que.; Halifax, North Sydney, and Yarmouth, N.S.; St. John, N.B.; Collingwood and Kingston, Ont.; and at Vancouver, B.C.

At Carleton, Capt. A. Landry, instructor, 96 sessions were held; average attendance 4, maximum attendance 6.

At New Richmond, Capt. A. Landry, instructor, 27 sessions were held; average attendance 2, maximum attendance 3.

At Quebec, Capt. P. L. Lachance, instructor, 244 sessions were held; average attendance 6, maximum attendance 21.

At Halifax, Capt. Simmons, instructor, 305 sessions were held; the maximum attendance was 11.

At North Sydney, Capt. Jas. Sutherland, instructor, 86 sessions were held; average attendance 1, maximum attendance 3.

At Yarmouth, N.S., Capt. J. E. Murphy, instructor, 32 sessions were held; average attendance 4, maximum attendance 7.

At St. John, Capt. Rufus C. Cole, instructor, 313 sessions were held; average attendance 5, maximum attendance 9.

At Collingwood, Capt. Geo. C. Coles, instructor, 34 sessions were held; average attendance, 11, maximum attendance 22.

At Kingston, Capt. H. N. McMaster, instructor, the school started late in the season and closed when navigation opened. Ten of the pupils at this school passed for certificates.

At Vancouver, Capt. Chas. Eddie, instructor, 24 sessions were held; average attendance 25, maximum attendance 33.

The total expenditure on account of navigation schools during the above period was \$4,216.95.

**MASTERS AND MATES.***Eastern Division.*

At Halifax, N.S., Capt. F. N. Malcolm, examiner, 52 candidates were examined: 1 for master, 7 for mate, and 9 for second mate, sea-going; 18 for master and 16 for mate, coasting; and 1 for mate, inland waters. One candidate failed for master, coasting. Five persons underwent the sight tests, two of whom failed.

At Yarmouth, N.S., Capt. J. E. Murphy, examiner, 31 candidates were examined: 9 for master, 4 for mate, and 3 for second mate, sea-going; 9 for master and 6 for mate, coasting. One candidate failed for master, coasting.



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At North Sydney, N.S., Capt. Jas. Sutherland, examiner, 7 candidates were examined: 1 for second mate, sea-going; and 4 for master and 2 for mate, coasting. One candidate failed for second mate, sea-going. One person underwent the sight tests and failed.

At St. John, N.B., Capt. W. R. Bennett, examiner, 28 candidates were examined: 1 for master, sea-going; 9 for master, and 3 for mate, coasting; 14 for master, minor waters; and 1 for a master's temporary certificate. One candidate failed for master, coasting. Two persons underwent the sight tests, one of whom failed.

At Charlottetown, P.E.I., Capt. Alex. Cameron, examiner, 4 candidates were examined: 1 for master and 3 for mate, coasting. One person underwent the sight test.

At Quebec, Que., Capt. P. L. Lachance, examiner, 64 candidates were examined: 1 for master and 1 for second mate, sea-going; 14 for mate, coasting; 4 for master and 4 for mate, inland waters; 31 for master and 5 for mate, minor waters; 2 for master's temporary certificates; and 2 for service certificates, master, minor waters. Nine candidates failed: 3 for mate coasting; 1 for mate, inland waters; and 5 for master, minor waters. Fifteen persons underwent the sight tests, 6 of whom failed.

#### *Western Division.*

At Vancouver, B.C., Capt. Chas. Eddie, examiner, 69 candidates were examined: 2 for master, 6 for mate, and 3 for second mate, sea-going; 35 for master, and 20 for mate, coasting; and 1 for master and 2 for mate, minor waters. Three candidates failed: 2 for master, and 1 for mate, coasting. One person underwent the sight test.

At Victoria, B.C., Capt. J. D. Macpherson, examiner, 26 candidates were examined: 1 for mate, and 2 for second mate, sea-going; 13 for master and 7 for mate, coasting; and 1 for master, and 2 for mate, minor waters. Two candidates failed: 1 for second mate, sea-going; and 1 for master, coasting.

At Nelson, B.C., Lieut. Gordon Hallett, examiner, 3 candidates were examined for master, minor waters.

At Edmonton, Alta., Capt. A. D. Grant, examiner, no candidates were examined.

#### *Inland Waters Division.*

At Toronto, Ont., Capt. H. W. King, examiner, 103 candidates were examined: 1 for master, coasting; 25 for master, and 39 for mate, inland waters; 8 for master and 10 for mate, minor waters; 19 for master's temporary certificates; and 1 for master's service certificate, inland waters. Ten candidates failed: 2 for master and 3 for mate, inland waters; 2 for master, and 2 for mate, minor waters; and 1 for a master's temporary certificate. Six persons underwent the sight tests, 5 of whom failed.

At Collingwood, Ont., Capt. Geo. C. Coles, examiner, 23 candidates were examined: 1 for mate, coasting; 7 for master, and 10 for mate, inland waters; 2 for mate, minor waters; and 3 for master's temporary certificates. Four candidates failed: 3 for master, inland waters; and 1 for mate, minor waters.

At Kenora, Ont., Capt. Geo. P. Phillips, examiner, 8 candidates were examined for master's temporary certificates.

At West Selkirk, Man., Capt. M. Thordarson, examiner, 12 candidates were examined: 1 for master and 2 for mate, inland waters; and 1 for master, and 8 for mate, minor waters. One candidate failed for mate, minor waters.

#### CERTIFICATES ISSUED.

During the year the following numbers and grades of certificates have been issued to masters and mates: 14 masters', 18 mates', and 17 second mates' sea-going



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certificates of competency; 84 masters', and 68 mates' coasting certificates of competency; 1 masters' inland waters certificate of service; 32 masters', and 52 mates' inland waters certificates of competency; 2 masters' minor waters certificates of service; 52 masters', and 25 mates' minor waters certificates of competency; and 32 masters' temporary certificates. A complete list of masters' and mates' certificates issued during the year follows.

## RECEIPTS AND EXPENDITURE.

The total amount collected in the way of examination fees for certificates during the twelve months ended March 31, 1915, was \$4,561, and the amount expended on account of this service was \$12,723.17, an excess of expenditure over receipts of \$8,162.17.

The following statement shows the total receipts and expenditures on account of masters and mates during the last ten years:—

	Expenditure.	Receipts.
	\$ cts.	\$ cts.
For the fiscal year ended June 30, 1906 .....	7,068 15	5,526 00
" " March 31, 1907 (nine months).....	5,934 16	2,294 50
" " " 1908.....	11,508 31	4,306 05
" " " 1909.....	8,244 56	4,192 50
" " " 1910.....	6,662 52	4,314 50
" " " 1911.....	5,801 62	4,446 61
" " " 1912.....	7,226 54	3,970 00
" " " 1913.....	9,992 66	3,639 06
" " " 1914.....	13,273 11	5,558 75
" " " 1915.....	12,723 17	4,561 00
Expenditure.....	88,434 80	42,808 97
Receipts.....	42,808 97	
Excess of expenditure over receipts.....	45,625 83	

## PILOTAGE.

The Minister of Marine and Fisheries is the Pilotage Authority in the pilotage districts of Montreal and Quebec, and all matters of pilotage in those districts are controlled by him through a general superintendent at Quebec.

In both the Montreal and Quebec districts there is a Decayed Pilots' Fund. In the Montreal district the pilots contribute 5 per cent of their earnings to the Decayed Pilots' Fund of that district, which, on December 31, 1914, showed a balance to its credit of \$58,726.93. In the Quebec district the pilots contribute 7 per cent of their earnings to the Decayed Pilot' Fund of that district, which, on December 31, 1914, showed a balance to its credit of \$102,493.57. The Montreal Decayed Pilots' Fund is administered by the Dominion Government and disbursed through the Department of Finance. The Quebec Decayed Pilots Fund is managed by the Quebec Pilots Corporation at Quebec.

The earnings of the Montreal pilots during the calendar year 1914, amounted to \$114,388.84. And the earnings of the Quebec pilots amounted to \$157,150.05.

All pilotage earnings in the said districts, with the exception of the commissions for the Decayed Pilots Funds, are paid to the pilots.



All expenses in connection with the administration of pilotage in the Montreal and Quebec districts are paid out of consolidated revenue. The total expenditure during the calendar year 1914, including payments to retired pilots, amounted to \$46,433.07, made up as follows: salaries, \$17,935.07; maintenance, \$22,143.97; and payments to retired pilots, \$6,354.03.

Extracts from the Annual (1914) Returns of the General Superintendent, form an appendix to this report.

Of the thirty-nine other Pilotage Authorities constituted under the authority of the Governor in Council in pursuance of the provisions of the Canada Shipping Act, twenty-nine have sent in returns for 1914, extracts from which form also an appendix to this report.

I have the honour to be, sir,

Your obedient servant,

B. F. BURNETT,

*Officer in Charge*

*Masters and Seamen Branch.*

APPENDIX A.—MASTERS AND MATES.

No. 1.—List of Sea-going Certificates of Competency issued to Masters, Mates and Second Mates, during the twelve months ended March 31, 1915.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1914.					\$ cts.
4033	3 April ..	Waldo Robert Smeltzer..	2nd mate.....	Mahone Bay, N.S. ....	Halifax, N.S.....	8 00
4034	3 " ..	Vernon Hirtle .....	" .....	Halifax, N.S.....	" .....	8 00
4035	3 " ..	James S. Le Cain.....	Master.. . . .	c/o British Consul, New Orleans, U.S.A.	Yarmouth, N.S.	15 00
4036	11 " ..	Stanley J. Kaulback .. .	" .....	Mahone Bay, N.S. ....	" .....	15 00
4037	27 " ..	James Archie Sanford...	2nd mate.....	Centre Burlington, Hants Co., N.S.....	" .....	8 00
4038	28 " ..	John Kearsey.....	" .....	St. John's, Nfld.....	Halifax, N.S.....	8 00
4039	4 May...	John Irvine.....	" .....	c/o British Consul, New York, U.S.A..	Yarmouth, N.S.	8 00
4040	12 " ..	Samuel Robinson.....	" .....	Vancouver, B.C.....	Vancouver, B.C.	8 00
4041	27 " ..	William Logan. ....	Master.. . . .	365 72nd Street, Brook- lyn, N.Y. ....	Yarmouth, N.S.	15 00
4042	5 June...	David Innes Wade.....	" .....	Lynn, Mass, U.S.A...	" .....	15 00
4043	5 " ..	William Douglas Ryan..	Mate.....	15 Selwood Place, South Kensington, London, Eng.....	Vancouver, B.C.	8 00
4044	9 " ..	John McCormick.. .....	" .....	Dartmouth, N.S.....	Halifax, N.S.....	8 00
4045	11 " ..	Hugh Arth. Baird Wilson	" .....	16 Cromwell Road, Ayr, Scotland.....	Victoria, B.C...	8 00
4046	25 " ..	Henry Bandy.....	Master.....	731 Second Street, New Orleans, U.S.A.....	Yarmouth, N.S.	15 00
4047	22 July...	John Gordon. ....	Mate.....	San Francisco, Cal., U.S.A.....	Vancouver, B.C.	8 00
4048	24 " ..	Dwight W. McLellan...	" .....	Brooklyn, N.Y. U.S.A.	Yarmouth, N.S.	8 00
4049	24 " ..	Fenwick Le Cain.....	2nd mate....	Chaverie, N.S.....	" .....	8 00
4050	24 " ..	Robert Goman.....	Mate.....	26 Broadway, New York, U.S.A.....	" .....	8 00
4051	24 " ..	Frederick Camacho.....	2nd mate....	27 South St. New York, U.S.A. ....	Quebec, P.Q.....	8 00
4052	7 Aug....	Austin Doyle.....	Mate.....	Halifax, N.S.....	Halifax, N.S.....	8 00



## SESSIONAL PAPER No. 21

No. 1.—List of Sea-going Certificates of Competency issued to Masters, Mates and Second Mates, during the twelve months ending March 31, 1915—*Concluded*.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1914					\$ cts.
4053	13 Aug....	Douglas Ramsden Attwood.....	Mate.....	San Francisco, U.S.A.	Vancouver, B.C.	8 00
4054	14 " ..	David Mason Taggart...	Master.....	Lower Onslow, N.S.	Yarmouth, N.S.	15 00
4055	24 " ..	Maurice N. Barkhouse..	Mate.....	New Orleans, U.S.A.	"	8 00
4056	8 Sept. ..	William Mogridge ....	Master.. ....	Yarmouth, N.S.....	"	15 00
4057	14 Oct ...	William Borrows.....	2nd mate.....	Halifax, N.S.....	Halifax, N.S....	8 00
4058	28 " ..	James Donohue.....	" .....	Vancouver, B.C.	Vancouver, B.C.	8 00
4059	3 Nov. ...	James William Bain....	Mate.....	61 Chichester Road, Westoe, S'th Shields, Eng.....	"	8 00
4060	11 " ..	Harry Bridge.....	Master.....	Vancouver, B.C.....	"	15 00
4061	23 " ..	Robert C. Forbes.....	Mate.....	Parrsboro, N.S. ....	Halifax, N.S....	6 00
4062	2 Dec....	Grey Beresford Leonard.	Master.. ....	West St. John, N.B..	St. John, N.B..	15 00
4063	4 " ..	John Alfred Ridley. ....	" .....	Bay View Villa, Main Road, Dorchester, N.B.....	Quebec, P.Q.....	15 00
4064	12 " ..	Huntley Osburn Giffin..	2nd mate. ....	Halifax, N.S. ....	Halifax, N.S....	8 00
	1915.					
4065	27 Jan....	Charles Barber Smith....	Master.....	Vancouver, B.C.....	Vancouver, B.C.	15 00
4066	27 " ..	John Cogswell MacKenzie.....	2nd mate.....	Halifax, N.S. ....	Halifax, N.S....	8 00
4067	2 Feb....	George Paterson.....	" .....	Vancouver, B.C.....	Vancouver, B.C.	8 00
4068	5 " ..	John MacNeill.....	Mate.....	c/o British Consul, New York, U.S.A.	Yarmouth, N.S.	8 00
4069	8 " ..	Frederick Samuel Rowe.	2nd mate.....	20 Park Ave., Willesden Green, London, N. W.....	Victoria, B.C....	8 00
4070	8 " ..	Stephen Edward McDonald .....	Master.....	Sydney, C.B., N.S....	Halifax, N.S....	15 00
4071	11 " ..	Lloyd Maxwell Atkins...	2nd mate.....	Halifax, N.S.....	"	8 00
4072	23 " ..	John Patrick Perry.....	" .....	"	"	8 00
4073	23 " ..	Frederick Charles Weeks	Mate.....	Vancouver, B.C....	Vancouver, B.C.	8 00
4074	23 " ..	Leon Otto Everett. ....	Master.. ....	Bridgetown, N.S.....	Yarmouth, N.S.	15 00
4075	4 Mar....	Beecher Percival Powell.	" .....	Little River, N.S....	"	15 00
4076	5 " ..	Henry Wadsworth.....	Mate .....	Vellore, Rutland Road, (provisional) Harrogate, Eng.....	Halifax, N.S....	8 00
4077	12 " ..	Francis Ed. Bentley More	Mate .....	Elmfield, Totnes, (provisional) Devon, Eng.....	"	8 00
4078	12 " ..	Lewis Morgan .....	Mate .....	Stafford Lodge, Burnham, Somerset, Eng..	"	8 00
4079	12 " ..	Arnold George Morgan..	Mate .....	Oaklands Hokesley, (provisional) Yorkshire, Eng....	"	8 00
4080	25 " ..	Francis John Silva.....	Mate... ..	Sydney, Australia ....	Vancouver, B.C.	8 00
4081	26 " ..	A. W. Carden Lockwood	2nd mate.. ..	Chester, England.....	Halifax, N.S....	8 00



6 GEORGE V, A. 1916

No. 2.—LIST of Certificates of Competency issued to Masters and Mates of Coasting and Inland-waters vessels during the twelve months ended March 31, 1915.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1914.					\$ cts.
7452	3 April	Waldo Robert Smeltzer..	Mate.....	Mahone Bay, N.S....	Halifax, N. S....	6 00
7453	14 "	Martin MacKinnon.....	" .....	Victoria, B.C.....	Victoria, B.C....	6 00
7454	14 "	Albert W. Beatty. ....	Master.....	Midland, Ont.....	Collingwood, Ont	15 00
7455	14 "	James Reoch.....	Mate .....	Nottawa, Ont.....	" .....	6 00
7456	14 "	Henri Lambert.....	Master.....	Levis, P.Q .....	Quebec, P. Q....	15 00
7457	14 "	F. Alex. Macpherson....	Mate.....	Markham, Ont.....	" .....	6 00
7458	14 "	Alfred Leclerc.....	" .....	Kamouraska, P.Q....	" .....	6 00
7459	14 "	Joseph Guillaume Racine	Master.. ...	St. Valier, P.Q.....	" .....	15 00
7460	14 "	Eliend Hoffman.....	" .....	Berthier, P.Q.....	" .....	15 00
7461	14 "	John W. Murray.....	Mate.....	Goderich, Ont .....	Toronto, Ont....	6 00
7462	14 "	Junis A. Macksey.....	" .....	Midland, Ont.....	" .....	6 00
7463	14 "	Joseph H. Rockwell.....	Mate.....	River Hebert, N.S....	St. John, N.B....	6 00
7464	14 "	George Edward Dicks....	Master.....	North Sydney, N.S..	No. Sydney, N.S.	15 00
7465	14 "	William Canterbury....	Mate .....	Tod Inlet, Saanich, V.I.	Victoria, B.C....	6 00
7466	14 "	George O. Maschke.....	" .....	Lahave, N. S....	Halifax, N. S....	6 00
7467	14 "	George Robert Parsons..	" .....	Louisburg, C.B., N.S.	" .....	6 00
7468	14 "	Charles LeBlanc .....	Master.....	Arichat, N.S.....	" .....	15 00
7469	14 "	John Buffett .....	" .....	Sydney, C.B., N.S....	" .....	15 00
7470	14 "	Ed. Charlton Hagerty....	" .....	Halifax, N. S .....	" .....	15 00
7471	14 "	J. Freeman Smeltzer....	Mate.....	Mahone Bay N. S....	" .....	6 00
7472	14 "	J. Freeman Smeltzer....	Master.....	Mahone Bay, N.S....	" .....	15 00
7473	14 "	Burnal F. Schmeisser....	Mate.....	Halifax, N. S....	" .....	6 00
7474	14 "	Wm. Nelson Coughlin....	Master.....	Vancouver, B.C .....	Vancouver, B.C.	15 00
7475	21 "	Earle E. Denton.....	Mate. ....	Westport, N. S.....	Yarmouth, N.S.	6 00
7476	21 "	Charles Livingstone.....	Master.. ...	St. John, N.B.....	St. John, N. B....	15 00
7477	21 "	Robert Wood Gray.....	" .....	Douglastown, N.B....	" .....	15 00
7478	21 "	Raoul Chatel. ....	" .....	Montreal, P.Q.. ....	Quebec, P.Q.....	15 00
7479	21 "	William Ludlow. ....	" .....	Tod Inlet, V.I., B.C..	Victoria, B.C....	15 00
7480	21 "	Hy. Christian Andersen..	Mate.....	Victoria, B.C.....	" .....	6 00
7481	21 "	John McKay.. ....	" .....	Owen Sound, Ont.....	Toronto, Ont ..	6 00
7482	21 "	John Henry Hubley.....	Master... ..	Charlottetown, P.E.I.	Charlottesville, P.E.I.	15 00
7483	21 "	Angus McLeod.....	Mate.....	Charlottetown, P.E.I.	" .....	6 00
7484	21 "	Alexander Smith....	Master... ..	Louisburg, N.S.....	No. Sydney, N.S.	15 00
7485	21 "	John Stillman Wilson....	" .....	Kenora, Ont.....	W. Selkirk, Man	15 00
7486	21 "	David Candow.....	" .....	Prince Rupert, B.C..	Vancouver, B.C.	15 00
7487	21 "	Lachlan McLean.....	Mate.....	G. T. P. Office, Vancouver, B.C.	" .....	6 00
7488	21 "	Donald Wesley Peck....	Master.....	Prince Rupert, B.C....	" .....	15 00
7489	21 "	Ifor Wynn Williams....	" .....	Vancouver, B.C.....	" .....	15 00
7490	21 "	Joseph Jennex.....	" .....	Jeddore, N. S.....	Halifax, N. S....	15 00
7491	21 "	Andrew Slater .....	" .....	Victoria, B.C.....	Victoria, B. C....	15 00
7492	23 "	Pierre Millette .....	" .....	Ste. Anne de Sorel, Q.	Quebec, P. Q....	15 00
7493	27 "	James Cook .....	" .....	West Selkirk, Man....	W. Selkirk, Man.	15 00
7494	27 "	Fred W. Titus .....	" .....	St. John, North End, N. B.	St. John, N.B....	15 00
7495	27 "	Warren D. MacKenzie....	" .....	Derby Junction, N.B.	" .....	15 00
7496	27 "	George H. Johnston .....	" .....	Derby Junction, N.B.	" .....	15 00
7497	27 "	John Cunningham .....	" .....	Gaudette, P. Q.....	Montreal, P.Q....	15 00
7498	28 "	Terrence V. Freeman....	Mate.....	Louis Head, N. S.....	Halifax, N.S....	6 00
7499	4 May	Lactance Lachance.....	" .....	St. Jean, Ile d'Orleans P.Q.	Quebec, P.Q.....	6 00
7500	4 "	Perry Parks.....	" .....	Parks Creek, N, S....	Yarmouth, N.S.	6 00
7501	7 "	Adolphe Marchand.....	Master.....	Champlain, P.Q .....	Quebec, P. Q....	15 00
7502	7 "	Oscar Perron.....	Mate.....	Montreal, P.Q.. ....	Halifax, N. S....	6 00
7503	7 "	Stephen M. Rolf .....	Master.....	Alma, Albert Co., N.B.	St. John, N. B....	15 00
7504	7 "	Richard J. A. Harding..	" .....	East Vancouver, B. C.	Vancouver, B.C.	15 00
7505	7 "	Simon Baxter Wells.....	" .....	West Vancouver, B.C.	" .....	15 00
7506	7 "	Simon Baxter Wells.....	Mate.....	" .....	" .....	6 00
7507	7 "	Horatio Hodder. ....	Master.....	" .....	" .....	15 00
7508	7 "	Horatio Hodder... ..	Mate.....	" .....	" .....	6 00
7509	9 "	Dorila Hoington .....	Master....	Tadousac, P.Q.....	Quebec, P.Q....	15 00
7510	12 "	Harold Barber Metcalfe..	" .....	Vancouver, B.C.....	Vancouver, B.C.	15 00
7511	12 "	Elphège Mallette.....	Mate.....	Rigaud, P. Q.....	Quebec, P.Q....	6 00



## SESSIONAL PAPER No. 21

No. 2.—LIST of Certificates of Competency issued to Masters and Mates of Coasting and Inland-waters vessels during the twelve months ended March 31, 1915—*Continued.*

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1914.					\$ cts.
7512	12 May ..	William Stevens.....	Mate.....	Selkirk, Man.....	W. Selkirk, Man	6 00
7513	13 " ..	Angus McKinnon.....	Master..	Nelson, B.C.....	Nelson, B.C....	15 00
7514	19 " ..	David L. Stewart.....	" .....	St. Peters, C.B., N.S..	St. John, N.B..	15 00
7515	19 " ..	George Albert Burton...	" .....	Halifax, N.S.....	Halifax, N.S. .	15 00
7516	19 " ..	Burnell W. Lyons..	Mate.....	Vancouver, B.C.....	Vancouver, B.C	6 00
7517	22 " ..	James Harbridge Yelf...	Master.....	New Westminster, B.C	" .....	15 00
7518	26 " ..	Abner Burwell Neves...	Master.....	West Apple River, N.S	St. John, N.B..	15 00
7519	26 " ..	Abner Burwell Neves...	Mate.....	" .....	" .....	6 00
7520	26 " ..	William Atwood Martin	Master.....	Halifax, N.S.....	Halifax, N.S....	15 00
7521	30 " ..	John George Bryant....	Master .....	Mattawa, Ont.....	Ottawa, Ont....	15 00
7522	30 " ..	Cyrille Martel.....	" .....	Bienville, P.Q.....	Quebec, P.Q. .	15 00
7523	5 June..	Frederick Milton. ....	Mate.....	Port Greville, N.S....	Yarmouth, N.S.	6 00
7524	5 " ..	C. Malcolm Wilkie.....	Master.....	West Lahave, N.S....	" .....	15 00
7525	5 " ..	John B. Wilkie.....	Mate.....	" .....	" .....	6 00
7526	5 " ..	John Wilkin Bryant....	Master..	Vancouver, B.C .....	Vancouver, B.C	15 00
7527	5 " ..	John Wilkin Bryant....	Mate.....	" .....	" .....	6 00
7528	5 " ..	Francis Thomas Pender- gast.....	Master.....	Cornwall, Ont.....	Ottawa, Ont....	15 00
7529	9 " ..	Stephen J. Stefanson...	Mate.....	Selkirk, Man.....	West Selkirk, M.	6 00
7530	9 " ..	Ernam F. Sarty.....	" .....	Pleasantville, N.S....	Yarmouth, N.S.	6 00
7531	18 " ..	Georges Adjutor Caron..	Master.....	Les Escoumains, P.Q.	Quebec, P.Q....	15 00
7532	18 " ..	Robert Alfred Bartley..	Mate.....	Winnipeg, Man.....	West Selkirk, M.	6 00
7533	18 " ..	Ritchie R. McLellan....	Master.....	St. John, N.B. ....	St. John, N.B..	15 00
7534	18 " ..	Edward Payzant.....	" .....	Port Mouton, N.S....	Yarmouth, N.S	15 00
7535	18 " ..	John Ariss.....	Mate.....	Gravenhurst, Ont....	Toronto, Ont....	6 00
7536	24 " ..	Robert Grant Taylor....	" .....	South Sarnia, Ont....	" .....	6 00
7537	25 " ..	Delbert D. Clayton.....	Master.....	St. John, N.B.....	Yarmouth, N.S.	15 00
7538	22 July..	Leonard Wm. Shaw.....	" .....	" .....	St. John, N.B..	15 00
7539	22 " ..	Peter Roe .....	" .....	Naramata, B.C.....	Nelson, B.C....	15 00
7540	22 " ..	Earl Coates.....	Mate.....	Yarmouth, N.S.....	Yarmouth, N.S.	6 00
7541	22 " ..	Joshua James Pittman..	" .....	Winnipeg, Man .....	West Selkirk, M.	6 00
7542	22 " ..	Harry John Augustine..	" .....	Vancouver, B.C .....	Vancouver, B.C.	6 00
7543	22 " ..	Alfred Benjamin Paquet	" .....	Souris, P.E.I.....	Halifax, N.S....	6 00
7544	22 " ..	Manford E. Beattie.....	Master.....	Beulah, N.B.....	St. John, N.B..	15 00
7545	24 " ..	Robert Earnest McGau- ley.....	" .....	Castlegar, B.C. ....	Nelson, B.C....	15 00
7546	24 " ..	Carl Anderson .....	Mate.....	Victoria, B.C.....	Victoria, B.C....	6 00
7547	24 " ..	William Henry Hall....	" .....	Winnipeg, Man .....	West Selkirk, M.	6 00
7548	24 " ..	Alfred C. Reed.....	Master..	London, England.....	St. John, N.B..	15 00
7549	24 " ..	William Lett.....	" .....	Gravesend, England..	" .....	15 00
7550	24 " ..	John S. Nicholson .....	" .....	Goderich, Ont.....	Toronto, Ont....	15 00
7551	24 " ..	George Walsh .....	" .....	Canso, N.S.....	Halifax, N.S....	15 00
7552	7 August	Henry John R. Taylor..	" .....	Greenwich, England..	St. John, N.B..	15 00
7553	7 " ..	Allan William Ferguson.	" .....	New Westminster, B.C	Vancouver, B.C.	15 00
7554	7 " ..	Xavier Savard.....	Mate.....	St. Simeon, P.Q. ....	Quebec, P.Q....	6 00
7555	7 " ..	Philippe St. Pierre.....	" .....	Bic, P.Q.....	" .....	6 00
7556	7 " ..	Sidney Olsen.....	Master.....	Victoria, B.C.....	Victoria, B.C....	15 00
7557	7 " ..	Austin Doyle.....	" .....	Halifax, N.S.....	Halifax, N.S....	15 00
7558	13 " ..	George Ashley Maude...	" .....	Mayne Island, B.C....	Vancouver, B.C.	15 00
7559	13 " ..	Carl Jonsberg.....	Mate.....	Okanagan Landing, B.C. ....	Victoria, B.C....	6 00
7560	13 " ..	Thomas Laidlaw.....	" .....	Victoria, B.C.....	" .....	6 00
7561	13 " ..	Ronald James Cook.....	Master.....	Vancouver, B.C.....	Vancouver, B.C.	15 00
7562	13 " ..	Ronald James Cook.....	Mate.....	" .....	" .....	6 00
7563	24 " ..	Francis John Lewis.....	Master.....	" .....	" .....	15 00
7564	24 " ..	Frederick Joseph Yorke.	Mate.....	Norwood, Man.....	West Selkirk, M.	6 00
7565	24 " ..	Daniel Beaudet.....	Master..	Deschaillons, P.Q....	Quebec, P.Q....	15 00
7566	2 Sept...	Leonard Stewart Wilson.	Mate.....	Fort Frances, Ont....	West Selkirk, M.	6 00
7567	3 " ..	Arthur Pascoe.....	Master.....	St. John, N.B.....	St. John, N.B.	15 00
7568	4 " ..	George Allan Sharen....	" .....	Wallaceburg, Ont....	Toronto, Ont ...	15 00
7569	8 " ..	Thomas Burke .....	" .....	Louisburg, C.B. N.S..	North Sydney, N.S.....	15 00
7570	8 " ..	George E. Emmerscn...	Mate.....	Vancouver, B.C.....	Vancouver, B.C.	6 00



No. 2.—List of Certificates of Competency issued to Masters and Mates of Coasting and Inland-waters vessels during the twelve months ended March 31, 1915—*(continued)*.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
						\$ cts.
7571	16 Oct.	Stewart Noel	Master..	Victoria, B.C.	Victoria, B.C.	15 00
7572	17 "	Oscar Germain.	"	Ste. Emelie, P.Q.	Quebec, P.Q.	15 00
7573	7 "	Byron Blackford	"	Tiverton, N.S.	Yarmouth, N.S.	15 00
7574	6 "	Robert Steen.	"	Victoria, B.C.	Victoria, B.C.	15 00
7575	6 "	Neil MacNeill.	"	Vancouver, B.C.	Vancouver, B.C.	15 00
7576	14 "	William Borrows.	Mate.....	Halifax, N.S.	Halifax, N.S.	6 00
7577	14 "	John Gay	Master.....	Burges, N.F.L.	Quebec, P.Q.	15 00
7578	16 "	Herman Thorsen.	"	Vancouver, B.C.	Vancouver, B.C.	15 00
7579	16 "	Jack Finlator Nicholles.	"	"	"	15 00
7580	16 "	Arthur S. Pride.	Master	Halifax, N.S.	Halifax, N.S.	15 00
7581	22 "	Irving C. Foster.	"	Smith's Falls, Ont.	Toronto, Ont.	15 00
7582	23 "	Robert T. Watters.	"	St. John, N.B.	St. John, N.B.	15 00
7583	10 "	Alphonse Halle.	Mate..	Quebec, P.Q.	Quebec, P.Q.	6 00
7584	10 "	Odilon Portelance.	Master.....	Deschambault, P.Q.	"	15 00
7585	10 "	William Delovehrey.	Master	Victoria, B.C.	Victoria, B.C.	15 00
7586	10 "	Frederick R. MacFarlane	"	Sidney, B.C.	"	15 00
7587	10 "	Cleophas Arseneau.	"	Magdalen Islands, P.Q.	Halifax, N.S.	15 00
7588	10 "	Hans Mikkelsen Uldall.	"	Vancouver, B.C.	Vancouver, B.C.	15 00
7589	10 "	Hans Mikkelsen Uldall.	Mate.....	"	"	6 00
7590	10 "	Thomas Leonard Higgs.	Master.	"	"	15 00
7591	10 "	Thomas Leonard Higgs.	Mate.....	"	"	6 00
7592	10 "	George Ashley Maude.	"	Mayne Island, B.C.	"	6 00
7593	17 "	Patrick Campbell.	Master..	St. Peters, C.B., N.S.	North Sydney, N.S.	15 00
7594	17 "	John H. Smith.	"	St. John, N.B.	St. John, N.B.	15 00
7595	17 "	Alfred Jameson.	"	"	"	15 00
7596	17 "	Frank K. Crosby.	"	Yarmouth, N.S.	Yarmouth, N.S.	15 00
7597	17 "	Raymond Collishaw.	"	Nanaimo, B.C.	Vancouver, B.C.	15 00
7598	23 "	Eugene Coates.	"	Hillsburn, N.S.	Yarmouth, N.S.	15 00
7599	30 "	Alexander L. MacKenzie	"	Victoria, B.C.	Victoria, B.C.	15 00
7600	9 Dec.	Hugh McManus.	Mate.....	Vancouver, B.C.	Vancouver, B.C.	6 00
7601	9 "	Levi Laird	Master.	Chase, B.C.	Victoria, B.C.	15 00
7602	10 "	Frederick Leon Clarke	"	Vancouver, B.C.	Vancouver, B.C.	15 00
7603	10 "	Frederick Leon Clarke	Mate.....	"	"	6 00
7604	10 "	James Edward Hatt	Master.....	Victoria, B.C.	Victoria, B.C.	15 00
7605	15 "	Frank Powers	"	Vancouver, B.C.	Vancouver, B.C.	15 00
7606	15 "	Frank Powers	Mate.....	"	"	6 00
7607	22 "	Roy Parkhurst Carnegie.	Master..	Rockport, Ont.	Toronto, Ont.	15 00
7608	22 "	Guy S. Hayes.	Mate.....	Courtright, Ont.	"	6 00
7609	24 "	James Rand.	"	Mooretown, Ont.	"	6 00
7610	24 "	Joseph Harden	"	Windsor, Ont.	"	6 00
7611	24 "	Thompson Campbell	Master.....	Warton, Ont.	"	15 00
7612	31 "	Albert Pearson	"	Vancouver, B.C.	Vancouver, B.C.	15 00
7613	31 "	Albert Pearson	Mate.	"	"	6 00
7614	31 "	John McKiernan.	Master..	"	"	15 00
7615	31 "	Joseph Hovington	"	Grandes Bergeronnes, P.Q.	Quebec, P.Q.	15 00
7616	31 "	Edward Carroll.	Mate.....	Toronto, Ont.	Toronto, Ont.	6 00
7617	31 "	Ingram Sabeau	Master.....	St. John, N.B.	St. John, N.B.	15 00
1915.						
7618	11 Jan.	Robert Graham.	Master.....	Collingwood, Ont.	Collingwood, Ont.	15 00
7619	11 "	William Wallace Graham	"	Parrboro, N.S.	Halifax, N.S.	15 00
7620	11 "	Neil MacNaughtan.	Mate.	Bracebridge, Ont.	Toronto, Ont.	6 00
7621	11 "	Roderick MacDonald.	Master.....	Goderich, Ont.	"	15 00
7622	11 "	George Lewis Matyear.	Mate.....	Victoria, B.C.	Victoria, B.C.	6 00
7623	11 "	Hugh Davidson.	Master.....	Goderich, Ont.	Toronto, Ont.	15 00
7624	12 "	James Tyson.	Mate.....	St. Catharines, Ont.	"	6 00
7625	14 "	Arthur Cavanagh.	"	Cobourg, Ont.	"	6 00
7626	14 "	Albert Henry Dixon	"	Bracebridge, Ont.	"	6 00
7627	14 "	James Francis Webb.	"	Port McNicoll, Ont.	"	6 00



## SESSIONAL PAPER No. 21

No. 2.—List of Certificates of Competency issued to Masters and Mates of Coasting and Inland-waters vessels during the twelve months ended March 31, 1915.—*continued.*

No. of Certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1915.					\$ cts.
7628	14 Jan.	John Joseph Dube.....	Master..	Parry Sound, Ont.....	"	15 00
7629	21 "	Mervin John Brooks....	Mate.....	Collingwood, Ont.....	Collingwood, Ont	6 00
7630	21 "	Louis Howard Burmister	"	"	"	6 00
7631	21 "	Joseph Alexandre H. Bouvier.....	Master.....	St. Ours, P.Q.....	Quebec, P.Q...	15 00
7632	21 "	Albert Richard P. J. Barrett ..	"	Kingston, Ont.....	"	15 00
7633	21 "	Willis Clark Brown.....	Mate.....	Owen Sound, Ont. ..	Toronto, Ont...	6 00
7634	21 "	Edward Russell Jordan..	Master.....	Toronto, Ont.....	"	15 00
7635	21 "	Walter Fred. Kirk ...	Master.....	Lakeport, Ont.....	To.onto, Ont ..	15 00
7636	21 "	Alfred Leith Henry....	Mate.....	Toronto, Ont.....	"	6 00
7637	27 "	James Cochrane.....	Master.....	Kingston, Ont.....	Montreal, P.Q..	15 00
7638	27 "	Robert Reid Elder....	"	Port Lambton, Ont...	Collingwood, Ont	15 00
7639	27 "	Ernest Russell Elyea....	"	Collingwood, Ont.....	"	15 00
7640	27 "	Arthur Draper.....	Mate.....	"	"	6 00
7641	27 "	Victor Shewen .....	"	Mount Julian, Ont. ..	Toronto, Ont...	6 00
7642	27 "	William Hyland.....	Master.....	Sault Ste. Marie, Ont.	"	15 00
7643	27 "	Henry Grant Redfern....	Mate.....	Colborne, Ont.....	"	6 00
7644	27 "	Leon Beaupre.....	Master.....	Kingston, Ont.....	"	15 00
7645	27 "	John Forrest Long .....	Mate.....	Auld, Ont.....	"	6 00
7646	27 "	John Cogswell Mackenzie	"	Halifax, N.S. ....	Halifax, N.S....	6 00
7647	27 "	Norman Noel.....	"	North Sydney, N.S....	North Sydney, N.S....	6 00
7648	2 Feb.	Ralph Michael Mahoney.	"	Elgin, Ont .....	Collingwood, Ont	6 00
7649	2 "	George Clinton Kirk....	"	Lakeport, Ont.....	Toronto, Ont...	6 00
7650	2 "	Joseph Bruce .....	"	Underwood, Ont. ....	"	6 00
7651	2 "	Norman Henry Miller..	Master.....	Courtright, Ont.....	Toronto, Ont...	15 00
7652	2 "	Ancus Howard Peterson.	Mate.....	Cobourg, Ont.....	"	6 00
7653	2 "	Harry Kirk .....	"	Lakeport, Ont.....	"	6 00
7654	3 "	Paul Emile Lachance....	"	Quebec, P.Q. ....	Quebec, P. Q....	6 00
7655	3 "	Jean Willy Pouliot.....	"	Montmorency, P.Q....	"	6 00
7656	3 "	Joseph Albani Bri.....	"	L'Islet, P.Q.....	"	6 00
7657	3 "	William Wesley Mac-murtry ..	"	Margaretville, N.S....	St. John, N.B..	6 00
7658	3 "	Charles Edward Prince..	Master.....	Vancouver, B.C. ..	Vancouver, B.C.	15 00
7659	3 "	Darius Smith.....	"	West Vancouver, B.C.	"	15 00
7660	8 "	William Allison.....	"	Quebec, P.Q....	Quebec, P. Q....	15 00
7661	8 "	Abdege Desforges .....	"	Greece's Point, P. Q..	"	15 00
7662	8 "	Robert Hunter .....	"	Victoria, B. C.....	Victoria, B.C...	15 00
7663	8 "	Harvey Melville Sheffield	Mate .....	Owen Sound, Ont.....	Toronto, Ont....	6 00
7664	11 "	Louis Olaf Larsen.....	Master.....	Vancouver, B.C.....	Vancouver, B.C.	15 00
7665	11 "	Christ Shelle. ....	"	"	"	15 00
7666	11 "	Edward Sloane.....	"	"	"	15 00
7667	12 "	Donald Macfarlane.....	Mate .....	Arrow Lake, B. C....	"	6 00
7668	18 "	William Hughes.....	Master..	Vancouver, B.C. ..	"	15 00
7669	18 "	William Hughes.....	Mate.....	"	"	6 00
7670	18 "	Frederick Richard....	"	Lahave, N. S.....	Halifax, N.S....	6 00
7671	18 "	George Samuel Heather	"	Pugwash, N.S.....	"	6 00
7672	18 "	George Samuel Heather	Master.....	"	"	15 00
7673	18 "	Joseph Henri Léon Valois	"	St. Ignace de Loyola, P. Q. ....	Montreal, P.Q..	15 00
7674	18 "	Joseph George N. Ménard	Mate .....	Kingston, Ont. ....	"	6 00
7675	18 "	Joseph Mederic Cossette.	"	Montreal, P. Q. ....	"	6 00
7676	18 "	Alfred Swaile .....	"	Midland, Ont.....	Toronto, Ont....	6 00
7677	18 "	Henry Shaw .....	"	Toronto, Ont.....	"	6 00
7678	18 "	William Donley Bain....	Master..	Warton, Ont.....	"	15 00
7679	18 "	William George Devlin..	Mate .....	Hanover, Ont.....	"	6 00
7680	18 "	Kenneth La Rush. ....	Master....	St. Catharines, Ont...	"	15 00
7681	18 "	John Thomas M. Barry..	"	Kingston, Ont .....	Kingston, Ont..	15 00
7682	18 "	Anthony Dolrice Roche fort .....	"	"	"	15 00
7683	18 "	Harry James Martin....	"	"	"	15 00



6 GEORGE V, A. 1916

No. 2.—LIST of Certificates of Competency issued to Masters and Mates of Coasting and Inland-waters vessels during the twelve months ended March 31, 1915—Continued.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1915.					\$ cts.
7684	18 Feb,	Edward Britton.....	Mate.....	Meaford, Ont....	Toronto, Ont....	6 00
7685	18 "	Milton Wiseley Hornsby	" .....	Toronto, Ont.....	" " ....	6 00
7686	18 "	Stanley Joseph Nesbitt..	" .....	Kingston, Ont.....	" " ....	6 00
7687	18 "	Ezra Raymond La Rush.	" .....	Wolfe Island, Ont....	Kingston, Ont..	6 00
7688	18 "	Percy Pattison Lawrence	" .....	Collingwood, Ont....	Collingwood, Ont	6 00
7689	18 "	Pierre Alfred Antaya....	" .....	Sorel, P. Q.....	Quebec, P. Q....	6 00
7690	26 "	Charles Gordon Sykes...	" .....	Victoria, B. C.....	Collingwood, Ont	6 00
7691	26 "	Lorne Douglas McLean..	" .....	Collingwood, Ont....	" " ....	6 00
7692	26 "	Thomas Carlos G. Jewitt..	" .....	Penetang, Ont.....	" " ....	6 00
7693	26 "	Alphonse Ernest Lavallée	Mate.....	Berthier, P. Q.....	Quebec, P. Q....	6 00
7694	26 "	Joseph Rosaire C. Fortin	" .....	L'Islet, P. Q.....	" " ....	6 00
7695	26 "	Joseph Philippe R. Gaudreau.....	" .....	St. Thomas, Montmagny, P. Q .....	" " ....	6 00
7696	26 "	Joseph François G. Gaudreau.....	" .....	Quebec, P. Q.....	" " ....	6 00
7697	26 "	James Bernard Zink .....	" .....	Corunna, Ont.....	Toronto, Ont....	6 00
7698	26 "	Francis George Borland.	" .....	Midland, Ont.....	" " ....	6 00
7699	26 "	Carl Hilmer Harmanson.	Master..	Sarnia, Ont .....	" " ....	15 00
7700	26 "	William John Owen.....	" .....	Albion, B. C.....	Vancouver, B. C.	15 00
7701	26 "	William John Owen.....	Mate.....	" " .....	" " ....	6 00
7702	26 "	Robert Clarence Menten.	Master.....	New Westminster, B. C	" " ....	15 00
7703	26 "	Rupert Protheroe.....	Mate.....	Vancouver, B. C.....	" " ....	6 00
7704	26 "	William Gordon Fardie..	Master.....	St. John, N. B.....	St. John, N. B..	15 00
7705	26 "	John Gilmore.....	" .....	Vancouver, B. C. ...	Vancouver, B. C.	15 00
7706	26 "	John Henry McDonald..	Mate... ..	Kenora, Ont.....	West Selkirk, Man.....	6 00
7707	4 "	Floyd Henry Boulton.....	" .....	Collingwood, Ont.....	Collingwood, Ont	6 00
7708	4 "	Ludger Legendre.. ..	Master..	Toronto, Ont.....	Toronto, Ont....	15 00
7709	4 "	William Ervin Rife.....	Mate.....	St. Catharines, Ont...	" " ....	6 00
7710	5 "	Horace William Huntley	Master.....	Parrsboro, N. S.....	Halifax, N. S...	15 00
7711	5 "	Romeo Angers.....	" .....	Ste Anne de la Parade, P. Q .....	Quebec, P. Q....	15 00
7712	5 "	Joseph Emile Massicotte	" .....	Deschailions, P. Q....	" " ....	15 00
7713	5 "	Gustave Guimond.....	" .....	Ste. Geneviève de Bastiscan, P. Q .....	" " ....	15 00
7714	5 "	Joseph Théophile V. Fournier.....	Mate.....	St. Thomas, Montmagny, P. Q .....	" " ....	6 00
7715	6 "	Allen John Wheaton....	Master.....	St. John, N. B. ....	St. John, N. B..	15 00
7716	6 "	John Emerson Gilchrist.	" .....	" " .....	" " ..	15 00
7717	11 March.	Robert McDonald Barkhouse.....	Master..	Westport, N. S. ....	Yarmouth, N. S.	15 00
7718	11 "	Floyd Emmery Wright..	Mate.....	Whitehorse, Y. T.....	Victoria, B. C...	6 00
7719	11 "	John Ross MacMillan...	" .....	Wood Islands, P. E. I..	Charlottetown, P. E. I.....	6 00
7720	11 "	David Otty Lunn.....	" .....	West Vancouver, B. C.	Vancouver, B. C.	6 00
7721	11 "	Joseph Albert Nadeau ..	Master..	St. Omer, Bonaventure, P. Q. ....	Carleton, P. Q..	15 00
7722	11 "	Fabien Octave Hache...	" .....	Hant Lameque, N. B..	" ..	15 00
7723	11 "	Joseph Abraham Dugas.	" .....	Carleton, P. Q....	" ..	15 00
7724	11 "	Edward Harvey Kirby..	" .....	Isaac Harbour, N. S...	Halifax, N. S..	15 00
7725	11 "	Edward Harvey Kirby ..	Mate.....	" .....	" ..	6 00
7726	11 "	Alfred Edward Seaman.	Master....	Pugwash, N. S.....	" ..	15 00
7727	11 "	Percy Malcolm Richard.	Mate.....	Lahave, N. S.....	" ..	6 00
7728	11 "	John Thomas M. Barry ..	" .....	Kingston, Ont.....	Kingston, Ont..	6 00
7729	11 "	George Brown.....	" .....	" .....	" ..	6 00
7730	11 "	Charles Edwin Phelix. ...	" .....	" .....	" ..	6 00
7731	11 "	William Vincent Smith ..	" .....	" .....	" ..	6 00
7732	11 "	Edward James Smith ...	Master..	" .....	" ..	15 00
7733	23 "	Claud Charles Ketchum.	" .....	Prince Rupert, B. C....	Victoria, B. C...	15 00
7734	23 "	Charles Peter Swanson..	Mate.....	Kenora, Ont.....	West Selkirk, Man.....	6 00
7735	23 "	John Rood Dickson. ...	Master.....	Sonora, N. S. ....	Halifax, N. S..	15 00



## SESSIONAL PAPER No. 21

No. 2.—LIST of Certificates of Competency issued to Masters and Mates of Coasting and Inland-waters vessels during the twelve months ended March 31, 1915—*Continued*

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1914.					\$ cts.
7736	23 March..	John Rood Dickson.....	Mate.....	Sonora, N.S.....	Halifax, N.S....	6 00
7737	24 " ..	Barry Alban Sullivan...	Master.....	Cornwall, Ont.....	Quebec, P.Q....	15 00
7738	24 " ..	Albert Labadie .....	" .....	Bienville, Levis.....	" .....	15 00
7739	24 " ..	Antoine Fournier.....	" .....	Quebec, P.Q.....	" .....	15 00
7740	24 " ..	Jos. Urbain A. Gauthier	Mate.....	Deschambault, P.Q...	" .....	6 00
7741	24 " ..	Harold Frederick Randall	Master.. ..	Seeley Bay, Ont.....	Toronto, Ont....	15 00
7742	24 " ..	James Arthur Goodwin..	" .....	Toronto, Ont.....	" .....	15 00
7743	24 " ..	Thomas Henry Douglas ..	Mate .....	Hastings, Ont.....	" .....	6 00
7744	24 " ..	Charles Sproule Ross....	Master.. ....	Port Robinson, Ont...	" .....	15 00
7745	24 " ..	George Wm. Hope Sixsmith.....	Mate.....	Toronto, Ont .....	" .....	6 00
7746	24 " ..	Avery Howard Nickerson	Master.....	Yarmouth, N.S .....	Yarmouth, N.S.	15 00
7747	24 " ..	Fred Nichols .....	Mate.....	Thedford, Ont.....	Toronto, Ont....	6 00
7748	24 " ..	Clarence Lee Crompton ..	" .....	Collingwood, Ont.....	Collingwood, Ont	6 00
7749	24 " ..	Frank Somerville Oatt ..	Master.....	Toronto, Ont .....	Toronto, Ont....	15 00
7750	24 " ..	Bastiaan Maartense.. ..	Mate.....	Sarnia, Ont.....	" .....	6 00
7751	24 " ..	David Dorwin Foote .....	" .....	Fergus, Ont.....	" .....	6 00
7752	25 " ..	Peter Adolphus Steele ..	" .....	Newport, P.E.I .....	Charlottetown, P.E.I .....	6 00
7753	25 " ..	Harry Adlem.....	Master.. ....	Esquimalt, B.C. ....	Victoria, B.C....	15 00
7754	26 " ..	James Herbert Alexander	" .....	Sarnia, Ont .....	Toronto, Ont....	15 00
7755	30 " ..	Aaron Elias Tower .....	Mate.....	Sackville, N.B.....	Halifax, N.S....	6 00
7756	30 " ..	John Percival Ramsay ..	" .....	Sault Ste. Marie, Ont..	" .....	6 00
7757	30 " ..	Frederick Osborne Vincent.....	" .....	Midland, Ont.....	Collingwood, Ont	6 00
7758	30 " ..	Roderick Leonard.....	" .....	Goderich, Ont.....	Toronto, Ont .....	6 00
7759	30 " ..	William James MacLean	Master.. ....	Meaford, Ont. ....	" .....	15 00
7760	30 " ..	Dan Norman Carmichael	Mate.....	St. Anns, N.S .....	North Sydney, N.S.....	6 00
7761	30 " ..	Louis Ramsbotham Davies.....	" .....	Esquimalt, B.C.....	Victoria, B.C....	6 00
7762	31 " ..	Fred Kent.....	Master.....	Winnipeg, Man .....	Toronto .....	15 00
7763	31 " ..	James Boyd .....	" .....	Prince Rupert, B.C...	Vancouver, B.C.	15 00
7764	31 " ..	James Boyd .....	Mate.....	" .....	" .....	6 00

LIST of Certificates of Service issued to Masters and Mates of Coasting and Inland-Waters Vessels during the twelve months ended March 31, 1915.

No. of certificate.	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1914.					\$ cts.
3417	20 April..	Louis Dugre.....	Master.. ....	Three Rivers, P.Q....	Quebec, P.Q....	8 00
3418	22 May...	Joseph Fagan.....	" .....	Belleville, Ont.....	Toronto, Ont....	8 00
3419	6 October	Joseph Gaudreault.....	" .....	Malbaie, P.Q.....	Quebec, P.Q....	8 00



No. 3.—LIST of Masters' Temporary Certificates issued during the twelve months ended March 31, 1915.

No. of certi- ficate.	Date of certifi.ate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1914.					\$ cts.
74	7 April ..	Harvey Miller.....	Master.....	Peterborough, Ont...	Toronto, Ont....	5 00
75	7 " ..	James Ingram .....	" .....	The Pas, Man.....	Kenora, Ont....	5 00
76	7 " ..	William K. Sims.....	" .....	Sault Ste. Marie, Ont.	Sault St. Marie, Ont.....	5 00
77	21 " ..	Charles McLeod.....	" .....	Cumberland, Ont.....	Montreal, P.Q..	5 00
78	22 " ..	George Finan.....	" .....	Braeside, Ont.....	Montreal, P.Q..	5 00
79	22 " ..	Hector Hardy.....	" .....	New Liverpool, P.Q..	Quebec, P.Q....	5 00
80	22 " ..	Benjayman McNally....	" .....	Minaki, Ont.....	Kenora, Ont...	5 00
81	22 " ..	Theodore Seaman.....	" .....	Sauble Falls, Ont.....	Collingwood, Ont	5 00
82	12 May...	James Jackson.....	" .....	Indian White Horse, Y.T.....		5 00
83	12 " ..	William Cooke.....	" .....	Grenville, P.Q.....	Ottawa, Ont....	5 00
84	14 " ..	Telesphore Martin.....	" .....	Pointe Fortune, P.Q	Montreal, P.Q..	5 00
85	30 " ..	Albert F. Stanton.....	" .....	Port Stanton, Ont....	Collingwood, Ont	5 00
86	1 June...	William Powles.....	" .....	Picton, Ont.....	Picton, Ont....	5 00
87	16 " ..	Robert H. Johnston.. ..	" .....	Port Carling, Ont....	Collingwood, Ont	5 00
88	22 July...	Lewis Royal Morton....	" .....	Samridge, Alta.....	Kenora, Ont....	5 00
89	22 " ..	Samuel David .....	" .....	Kenora, Ont.....	Kenora, Ont....	5 00
90	22 " ..	Francis Thomas Dodds..	" .....	Kenora, Ont.....	Kenora, Ont....	5 00
91	22 " ..	Rosario Lazzaro.....	" .....	Bracebridge, Ont.....	Toronto, Ont....	5 00
92	22 " ..	Albert Allen Jesmer....	" .....	Cornwall, Ont.....	Montreal, P.Q..	5 00
93	22 " ..	George Limorge.....	" .....	Buckingham, P.Q....	Ottawa, Ont...	5 00
94	24 " ..	Simon Cimon .....	" .....	Roberval, P.Q.....	Quebec, P.Q....	5 00
95	7 August.	Harvey Skelton.....	" .....	Bronte, Ont.....	Toronto, Ont....	5 00
96	24 " ..	Alfred Arthur Deacon..	" .....	The Pas, Man.....	Kenora, Ont...	5 00
97	24 " ..	John Henry Brooker....	" .....	Kenora, Ont.....	Kenora, Ont....	5 00
98	24 " ..	Henri Carrière.....	" .....	Monte Bello, P.Q....	Montreal, P.Q..	5 00
99	14 Sept. ..	George Lindsay.....	" .....	Kenora, Ont.....	Kenora, Ont...	5 00
100	14 " ..	Robert Richard Lee...	" .....	St. John West, N.B..	St. John, N.B..	5 00
101	22 " ..	Jean J. Crete.....	" .....	Grandes Piles, P.Q....	Ottawa, Ont....	5 00
102	6 October	Henry E. Hudson.....	" .....	Combermere, Ont....	Ottawa, Ont....	5 00
	1915.					
103	2 Feb....	Joseph Achille Couillard	" .....	Levis, P.Q.....	Quebec, P.Q....	5 00
104	9 " ..	James I. Campbell.....	" .....	Kelowna, B.C.....	Nelson, B.C....	5 00
105	25 March..	Alfred Girard.....	" .....	Ste. Fulgence, P.Q....	Montreal, P.Q..	5 00



## SESSIONAL PAPER No. 21

## APPENDIX B.

EXTRACTS FROM THE ANNUAL RETURNS OF PILOTAGE AUTHORITIES FOR THE CALENDAR  
YEAR 1914.

## PILOTAGE DISTRICT OF MONTREAL.

(The Minister of Marine and Fisheries is the Pilotage Authority.)

Pilots.	Date of Appointment.	Age.
1 Auger, S. Cleophas .....	Sept. 22, 1874 .....	69
2 Labranche, Ferdinand ...	Apr. 8, 1875.....	68
3 Bouille, L. Z.....	Jan. 16, 1878. . . . .	65
4 Gauthier, Laurent.....	Dec. 10, 1879 .....	64
5 Naud, Delavoie.....	Dec. 10, 1879 .....	61
6 Gauthier, Wilbrod.....	Dec. 10, 1879.....	62
7 Arcand, Norbert.....	Dec. 10, 1880.....	62
8 Bouille, Tancrede .....	Dec. 11, 1880.....	61
9 Raymond, Wilfrid..	Apr. 20, 1888.....	60
10 Hurteau, Joseph P.....	Mar. 20, 1889.....	54
11 Perreault, Edouard. . . . .	Mar. 20, 1889.....	65
12 Dussault, Honore..	July 16, 1889.....	61
13 Briere, Arthur.....	Apr. 28, 1891.....	58
14 Perreault, Alexis.....	Apr. 28, 1891.....	52
15 Dufresne, Come.....	June 28, 1891.....	54
16 Naud, Aubert.....	July 11, 1893.....	61
17 Dussault, Napoleon .....	Apr. 3, 1894.....	54
18 Arcand, Barthelemi.....	Apr. 3, 1894.....	54
19 Bellisle, Prudent.....	Apr. 3, 1894.....	52
20 Arcand, George.....	Apr. 3, 1894.....	50
21 Toupin, Constant.....	Apr. 3, 1894.....	48
22 Perreault, George .....	Sept. 11, 1894.....	49
23 Bouille, Narcisse.....	Oct. 9, 1894 .....	55
24 Leveille, Joseph.....	June 18, 1895.....	51
25 Perron, Severe.....	Apr. 14, 1896.....	57
26 Angers, Alberic.....	Mar. 14, 1898.....	40
27 Belisle, Arthur.....	Sept. 20, 1898.....	52
28 Hamelin, G. Theodule .....	Sept. 20, 1898.....	41
29 Perreault, Anthyme.....	May 1, 1900 .....	46
30 Raymond, J. N.....	Oct. 4, 1900 .....	45
31 Bourassa, J. Henri.....	Apr. 16, 1901.....	37
32 Paquin, E. A .....	June 13, 1902 .....	42
33 Labranche, J. Melville.....	June 13, 1902.....	40
34 Parnet, Damien.....	Feb. 4, 1903.....	41
35 Garipey, J. A.....	Apr. 20, 1903.....	36
36 Gagnon, Albert .....	Nov. 30, 1903.....	40
37 Frenette, J. Oswald.....	Mar. 26, 1906.....	39
38 Hamelin, Chs. B.....	June 8, 1906.....	34
39 Perron, Tancrede.....	Dec. 1, 1906.....	37
40 Frenette, J. Delavoie.....	Apr. 1, 1907.....	37
41 Hamelin, Fortunat.....	Apr. 20, 1907.....	36
42 Gauthier, Cyriac J. ....	July 3, 1907.....	35
43 Angers, J. B.....	July 7, 1908 .....	34
44 Perreault, David J.....	Jan. 15, 1909.....	35
45 Lachance, Napoleon. ....	June 4, 1909.....	31
46 Bouille, Henri .....	June 30, 1909.....	30
47 Perron, Theode.....	Aug. 1, 1909 .....	33
48 Dussault, Bona.....	May 2, 1910.....	33
49 Arcand, J. Arthur .....	Aug. 2, 1910.....	32
50 Rivard, F. X.....	Apr. 10, 1911 .....	34
51 Mayrand, J. A.....	Sept. 16, 1913.. . . .	32
52 Briere, Jules.....	Nov. 4, 1914.....	28

Total earnings.. . . .	\$114,388 84
The largest amount earned by any branch pilot was.. . . .	2,828 21
The smallest amount was.. . . .	1,431 58
The average amount earned by each tour-de-role pilot was .. . . .	2,482 40
The average amount earned by each special service pilot was..	2,260 29



PILOTAGE DISTRICT OF MONTREAL—Continued.

Apprentice Pilots.	Date of appointment.	Age.
1 de Villers, Napoléon.....	Dec. 30, 1903.....	28
2 Gosselin, Achille.....	Dec. 30, 1903.....	29
3 Marchand, Armand.....	Dec. 30, 1903.....	28
4 Paquette, Donat.....	Dec. 30, 1903.....	30
5 Lacroix, Edmond.....	Dec. 30, 1903.....	29
6 Houde, Thomas.....	Dec. 30, 1903.....	28
7 Marchand, Cyprien.....	Dec. 30, 1903.....	28
8 Naud, Emilien.....	Dec. 30, 1903.....	28
9 Perreault, Jos. Origène.....	Nov. 1, 1906.....	28
10 Perron, Oscar.....	May 15, 1907.....	27
11 de Villers, Jos. Edmond.....	June 15, 1907.....	27
12 Beaudry, François.....	May 5, 1908.....	24
13 Léveillé, Horace.....	May 5, 1908.....	23
14 Gauthier, André.....	Sept. 7, 1908.....	22
15 de Villers, Arthur.....	May 10, 1909.....	23
16 de Lachevrotière, C. Auguste.....	Aug. 31, 1909.....	24
17 Halle, Alphonse.....	Oct. 14, 1909.....	21

(The first four are the selected apprentices.)

<i>Ships piloted—</i>	Number
Sea-going vessels.....	867
Lake steamers.....	349
Schooners.....	42
Tugs, steam yachts, dredge and lightship.....	13
	1,271
Total registered tonnage of these vessels.....	\$ 3,119,898

<i>Decayed Pilots' Fund—</i>	
Five per cent of the pilot's earning is paid for the Decayed Pilots' Fund.	
Amount to the credit of the fund is.....	58,726 93

This Fund is administered by the Dominion Government and is distributed by the Department of Finance.

<i>Pensioners</i>	
1 Widow David L. Bouille.....	\$ 29 33
2 " Alexis Gauthier.....	32 00
3 " Octave J. Hamelin.....	37 33
4 " Adolphe Lise.....	37 33
5 " David Mathieu.....	32 00
6 " Edouard Naud.....	32 00
7 " Jean Nault.....	32 00
8 " Elzéar Béllisle.....	37 33
9 " Zéphirin Bouille.....	37 33
10 " Cyrille Béllisle.....	29 33
11 " Joseph Pleau.....	37 33
12 " Nestor Arcand.....	37 33
13 " Alfred Frénette.....	37 33
14 " C. Lyderic Bouille.....	32 00
15 " C. Joseph Dussault.....	37 33
16 " Célestin Brunet.....	37 33
17 " L. A. Bouille.....	37 33
18 " Joseph Chandonnet.....	37 33
19 " Onésime Naud.....	37 33
20 Heirs Josaphat Sauvageau, c/o Gustave Picard, tutor.....	29 33
21 Retired Pilot Jean Arcand.....	75 00
22 " Phillippe Bélanger.....	75 00
23 " Louis Mayrand.....	75 00



## SESSIONAL PAPER No. 21

PILOTAGE DISTRICT OF MONTREAL—*Continued.*

24	Retired Pilot	Auguste Naud.....	\$	75 00
25	"	Liboire Perreault.....		75 00
26	"	Gédéon Groleau.....		75 00
27	"	Alfred St-Amant.....		75 00
28	"	Néré Bellisle.....		75 00
29	"	Narcisse Perreault.....		75 00
30	"	Ulric Groleau.....		75 00
31	"	Prudent Beaudet.....		75 00
32	"	George Dufresne.....		75 00

No. 1—Widow David L. Bouille, died on the 13th February, 1914. Pension ceased on the 30th April, 1914.

No. 4—Widow Adolphe Lise, died on the 29th November, 1914. Pension ceased on the 31st January, 1915.

No. 20—Heirs (family) Josaphat Sauvageau, being over age, pension discontinued February 1, 1914.

No. 32—Retired Pilot, George Dufresne, died on the 9th May, 1914, pension \$75 ceased on the 31st July, 1914. Then pension, \$37.33, continued payable to his widow.

## PILOTAGE RATES.

From the harbour of Quebec to Portneuf and the opposite side of the river St. Lawrence, or below Portneuf and above the harbour of Quebec:—For the pilotage of any vessel in tow, or propelled by steam (except as hereinafter mentioned) for each foot of draught of water:—

Upwards.. .. .	\$0 50
Downwards.. .. .	0.50

For the pilotage of any sea-going vessel propelled by steam:—For each foot of draught of water:—

Upwards.. .. .	\$0 62½
Downwards.. .. .	0 62½

For the pilotage of any vessel under sail, for each foot of draught of water:—

Upwards.. .. .	\$1 05
Downwards.. .. .	70

From the harbour of Quebec to Three Rivers on the opposite side of the river St. Lawrence or any place above Portneuf and below Three Rivers:—For the pilotage of any vessel in tow, or propelled by steam (except as hereinafter mentioned). for each foot of draught of water:—

Upwards.. .. .	\$1 50
Downwards.. .. .	1 50

For the pilotage of any sea-going vessel propelled by steam, for each foot of draught of water:—

Upwards .. .. .	\$1 75
Downwards.. .. .	1 75

For the pilotage of any vessel under sail, for each foot of draught of water:—

Upwards .. .. .	\$2 60
Downwards .. .. .	1 90



From the harbour of Quebec to Sorel and the opposite side of the river St. Lawrence, or any place above Three Rivers and below Sorel:—For the pilotage of any vessel in tow, or propelled by steam (except as hereinafter mentioned) for each foot of draught of water:—

Upwards.. .. .	\$1 50
Downwards.. .. .	1 50

For the pilotage of any sea-going vessel propelled by steam, for each foot of draught of water:—

Upwards.. .. .	\$1 87½
Downwards.. .. .	1 87½

For the pilotage of any vessel under sail, for each foot of draught of water:—

Upwards.. .. .	\$3 15
Downwards.. .. .	2 10

From the harbour of Quebec to the harbour of Montreal or to any place above Sorel, and below the harbour of Montreal:—For the pilotage of any vessel in tow, or propelled by steam (except as hereinafter mentioned) for each foot of draught of water:—

Upwards .. .. .	\$2 00
Downwards.. .. .	2 00

For the pilotage of any inland or coasting vessel propelled by steam for each foot of draught of water:—

Upwards.. .. .	\$2 50
Downwards .. .. .	2 50

For the pilotage of any sea-going vessel propelled by steam for each foot of draught of water:—

Upwards.. .. .	\$3 00
Downwards.. .. .	3 00

For the pilotage of any vessel under sail, for each foot of draught of water:—

Upwards.. .. .	\$4 20
Downwards.. .. .	2 80

From the harbour of Montreal to Sorel or to any place above Sorel and below Hochelaga, and from Sorel or any place above Sorel and below Hochelaga to the harbour of Montreal:—For each foot of draught of water for each pilotage:—

Upwards.. .. .	\$1 00
Downwards.. .. .	1 00

MINIMUM TARIFF.

For the pilotage of any vessel subject to pilotage between the harbour of Montreal and the harbour of Quebec and vice versa a minimum fee shall be charged of \$20.

For the removal of any vessel (not otherwise exempted) from one wharf to another within the limits of the harbour, for each such service, \$5.

The payment of pilotage dues is compulsory in the pilotage district of Montreal.



## SESSIONAL PAPER No. 21

## PILOTAGE DISTRICT OF QUEBEC.

(The Minister of Marine and Fisheries is the Pilotage Authority.)

Pilots.	Date of Appointment.	Age.
1 Charles A. Raymond.....	Mar. 19, 1869 .....	66
2 Pierre Pepin dit Lachance .....	Oct. 7, 1870.....	65
3 Isidore Noel .....	Oct. 14, 1870.....	64
4 Theo. Corriveau.....	Jan. 24, 1871.....	68
5 Elzear Godbout .....	Feb. 28, 1871 .....	67
6 Narcisse Lavoie.....	Nov. 11, 1875 ..	66
7 Joseph E. Couillard.....	May 1, 1876.....	63
8 Louis A. Royer.....	May 2, 1876.....	69
9 Onezime Noel.....	May 3, 1876.....	61
10 F. X. Demeules.....	Aug. 9, 1876.....	62
11 L. H. Lapierre.....	Nov. 22, 1876.....	64
12 Jos. Eug. Lachance .....	Feb. 15, 1877.....	60
13 J. T. St. Laurent.....	June 20, 1877.....	63
14 Jos. V. Gourdeau.....	July 11, 1877.....	67
15 L. Treffe Delisle.....	Oct. 10, 1877 .....	60
16 J. B. Couillard .....	Oct. 10, 1877.....	63
17 Adjutor Baillargeon.....	April 17, 1878.....	60
18 Sam Rioux.....	May 8, 1878.....	61
19 Paul Lachance.....	April 22, 1879 .....	58
20 Arcadius Jovvin .....	Oct. 1, 1879.....	56
21 Paul Lachance.....	Oct. 22, 1879.....	58
22 Joseph Pouliot.....	Oct. 22, 1879.....	58
23 Adjutor Lachance.....	Nov. 12, 1879.....	56
24 Francois Gaudreau.....	Mar. 23, 1881.....	63
25 Arthur Koenig.....	Mar. 23, 1881 .....	63
26 Eugene Anctil.....	Mar. 23, 1881 ..	56
27 David Dumas .....	Mar. 23, 1881.....	61
28 Joseph Lachance.....	Mar. 23, 1881.....	61
29 Alphonse Pouliot.....	Mar. 23, 1881.....	62
30 Elzear Normand.....	Oct. 19, 1881.....	56
31 J. B. Bernier.....	Oct. 19, 1881.....	55
32 Joseph Paquet.....	Dec. 7, 1881.....	53
33 Jean A. Lachance .....	May 25, 1882 .....	53
34 Arthur Baillargeon.....	Oct. 11, 1882.....	57
35 Joseph Vezina.....	Nov. 27, 1882.....	56
36 J. A. Irvine.....	May 30, 1883.....	58
37 Frederic Bouffard .....	Aug. 2, 1883.....	57
38 Jules Asselin.....	Aug. 2, 1883.....	52
39 Lucien Lachance.....	April 12, 1884.....	53
40 Camille Bernier.....	July 16, 1884 .....	56
41 Moise Blouin.....	July 16, 1884.....	63
42 Alfred Gaudreau.....	July 16, 1884 .....	61
43 Alfred Raymond .....	July 16, 1884 .....	53
44 Philias Lachance.....	July 16, 1884.....	57
45 Moise A. Lachance.....	Feb. 13, 1888.....	50
46 Louis F. Thivierge.....	May 7, 1888.....	49
47 Alphonse Paquet.....	July 24, 1888.....	48
48 Adelard Bernier.....	Sept. 15, 1888.....	53
49 J. B. Pouliot.....	Aug. 16, 1889.....	44
50 Leonidas Lachance.....	Feb. 27, 1900.....	44
51 Eudore Langlois.....	Mar. 28, 1900.....	52
52 Joseph Delisle.....	July 20, 1904 .....	40
53 Jules Lachance.....	July 20, 1904 .....	33
54 Auguste Santerre.....	July 20, 1904 .....	32
55 Arthur Larochelle.....	July 20, 1904.....	35
56 Raoul Lachance.....	July 20, 1904.....	34
57 William Langlois.....	July 20, 1904.....	35
58 Ernest Bernier .....	July 20, 1904.....	39
59 Arthur Baquet.....	July 20, 1904 .....	33
60 Jules Lamarre.....	July 20, 1904.....	31
61 George Larochelle.....	July 20, 1904.....	36
62 Adelard Delisle .....	July 20, 1904.....	35
63 Alexandre Larochelle.....	Aug. 29, 1904.....	31
64 Arthur Paquet.....	May 22, 1905.....	38
Total earnings .....		157,160 05
Each pilot received a dividend of .....		2,250 00



PILOTAGE DISTRICT OF QUEBEC—*Concluded.*  
(The Minister of Marine and Fisheries is the Pilotage Authority.)

Pilots.	Date of Appointment.	Age.
<i>Apprentice pilots—</i>		
1 Gabriel Lachance.....	Mar. 9, 1908.....	23
2 Ernest Pouliot.....	Mar. 9, 1908.....	22
3 Bastien Anctil.....	Mar. 9, 1908.....	25
4 Joseph A. Bernier.....	Mar. 9, 1908.....	27
5 Félix Lavoie.....	Mar. 9, 1908.....	
6 Chas. H. Koenig.....	Mar. 9, 1908.....	24
7 Louis G. Lavoie.....	April 2, 1909.....	23
8 Albert Lachance.....	April 2, 1909.....	24
9 Cyrille Pouliot.....	April 2, 1909.....	22
10 Paul E. Lachance.....	April 19, 1910.....	21
11 H. Bouffard.....	April 19, 1910.....	25
12 H. Lachance.....	April 19, 1910.....	23
13 F. J. G. Gaudreau.....	April 19, 1910.....	22
14 Camille Couillard.....	April 19, 1910.....	23
15 Lactance Lachance.....	Dec. 15, 1910.....	22
16 J. W. Pouliot.....	Mar. 29, 1911.....	22
17 L. P. Langlois.....	Dec. 15, 1910.....	21
18 Rodrigue Lachance.....	May 3, 1911.....	26
19 Edmond Baquet.....	May 3, 1911.....	21
20 Leo Labrecque.....	May 3, 1911.....	22
21 Eudore Langlois.....	May 3, 1911.....	22
22 Romeo Gaudreau.....	May 3, 1911.....	25
23 Ed. Koenig.....	Mar. 29, 1912.....	21
24 J. E. Bouffard.....	Mar. 29, 1912.....	22
25 L. A. Larue.....	Mar. 29, 1912.....	22
26 Ed. Pouliot.....	Mar. 29, 1912.....	21
27 L. P. Couillard.....	Mar. 29, 1912.....	24
<i>Ships piloted—</i>		Num-ber.
British steam vessels.....		1,036
Foreign steam vessels.....		32
Foreign sailing vessels.....		1
		1,069



PILOTAGE RATES.

TABLE 1.—Rates of pilotage for the Harbour of Quebec and below for each foot of draught of water.

From	To	From May 1 to Nov. 10.	From Nov. 10 to Nov. 19.	From Nov. 19 to March. 1.	From March 1 to May 1.
		\$ cts. per ft.	\$ cts. per ft.	\$ cts. per ft.	\$ cts. per ft.
Father Point.....	Quebec.....	3 87 "	4 95 "	6 02 "	4 41 "
Quebec.....	Father Point..	3 40 "	4 46 "	5 54 "	3 93 "
Father Point.....	Chicoutimi.....	3 87 "	4 95 "	6 02 "	4 41 "
Chicoutimi.....	Father Point.....	3 40 "	4 46 "	5 54 "	3 93 "
Quebec.....	Tadoussac.....	3 40 "	4 46 "	5 54 "	3 93 "
Tadoussac.....	Quebec.....	3 87 "	4 95 "	6 02 "	4 41 "
Tadoussac.....	Chicoutimi.....	$\frac{2}{3}$ of 3 87 (2 58)	$\frac{2}{3}$ of 4 95 (3 30)	$\frac{2}{3}$ of 6 02 (4 02)	$\frac{2}{3}$ of 4 41 (2 94)
Chicoutimi.....	Tadoussac.....	$\frac{2}{3}$ of 3 40 (2 27)	$\frac{2}{3}$ of 4 46 (2 98)	$\frac{2}{3}$ of 5 54 (3 70)	$\frac{2}{3}$ of 3 93 (2 66)
Father Point or any place below the anchorage of Brandy Pots off Hare island.	Anchorage or moor- ing ground in the basin or harbour of Quebec.	3 87 per ft....	4 95 per ft....	6 02 per ft....	4 41 per ft....
The anchorage ground at the Brandy Pots off Hare island or any place above the said anchorage ground and below St. Roch's point.	" "	$\frac{2}{3}$ of 3 87 (2 58)	$\frac{2}{3}$ of 4 95 (3 30)	$\frac{2}{3}$ of 6 02 (4 02)	$\frac{2}{3}$ of 4 41 (2 94)
St. Roch's point or any place above this point and below the Pointe- aux-Pins or Crane is- land.	" "	$\frac{1}{3}$ of 3 87 (1 29)	$\frac{1}{3}$ of 4 95 (1 65)	$\frac{1}{3}$ of 6 02 (2 01)	$\frac{1}{3}$ of 4 41 (1 47)
Pointe-aux-Pins or Crane island to any place below St. Patrick's hole.	" "	$\frac{1}{4}$ of 3 87 (0 97)	$\frac{1}{4}$ of 4 95 (1 24)	$\frac{1}{4}$ of 6 02 (1 50)	$\frac{1}{4}$ of 4 41 (1 10)
The anchorage or mooring ground in the basin or harbour of Quebec.	Father Point or the place where the pilot shall be dis- charged in the river below Que- bec.	3 40 per ft....	4 46 per ft....	5 54 per ft....	3 93 per ft.

TABLE 2.—Rates of Pilotages for the Harbour of Quebec and below.

From	To
Any wharf in the harbour of Quebec between Pointe à Carcy, below and the west end of the Allan's wharf above both inclusive.	Any other wharf within said limits. . . \$2 50
Any place in the harbour of Quebec not being wharf within the above mentioned limits.	Any other place in the said harbour not being a wharf within the said limits. . . . . 5 00

N.B.—Pilots taking charge of vessels at St. Patrick's hole or above it shall be entitled to no more than the sum allowed in Table II for piloting vessels from one part of the harbour to another.

The payment of pilotage dues is compulsory in the pilotage district of Quebec.

H. ST. G. LINDSAY,  
General Superintendent of Pilotage.



PILOTAGE DISTRICT OF VANCOUVER, B.C.

Pilot Commissioners.	Date of Appointment.	Age.	Average Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
R. H. Alexander, Chairman.....	May 26, 1883.....	.....	.....	.....
C. G. Major.....	May 14, 1879.....	.....	.....	.....
Frank Burnett.....	July 20, 1898.....	.....	.....	.....
F. W. Evans.....	March 24, 1912.....	.....	.....	.....
H. G. Ross.....	March 24, 1912.....	.....	.....	.....
<i>Pilots—</i>				
1. W. Ettershank.....	June 18, 1888....	72	5,987 92	3,635 41
2. H. Robson Jones.....	July 1, 1892.....	59	5,987 92	3,635 40
3. G. W. Robarts.....	Oct. 1, 1907.....	42	5,987 92	3,635 39
4. R. A. Batchelor.....	May 15, 1910....	43	5,987 92	3,635 39
5. A. C. Anderson.....	Oct. 16, 1911....	46	5,987 92	3,354 97
6. A. Christensen.....	Feb. 1, 1912.....	40	5,987 92	3,268 32
7. B. L. Johnson.....	Jan. 29, 1913....	36	5,987 92	3,043 31
			41,915 44	24,208 19
<i>Vessels which paid pilotage dues—</i>		Number	Tonnage.	Amount paid.
British steam vessels.....		280	1,149,372	22,153 42
British sailing vessels.....		16	30,154	766 03
Foreign steam vessels.....		477	806,311	18,345 87
Foreign sailing vessels.....		34	30,202	650 12
		807	2,016,039	41,915 44
<i>Receipts and expenditures—</i>			Receipts.	Expenditure.
			\$	\$ cts.
Balance in bank 1/1/14.....			2,990 41	
Pilotage earnings, 1914.....			41,915 44	
Paid pilots 1/1/14.....				2,990 41
Paid during 1914.....				24,208 19
Office exp. a/c. 1914.....				1,456 85
Pilot boat and station, exp. a/c. 1914.....				5,217 30
Pilots' travelling expenses, 1914.....				8,298 42
Balance in bank.....				2,734 68
			44,905 85	44,905 85

PILOTAGE RATES.

For vessels entering into or clearing from the ports of Vancouver and Howe sound, the rates of pilotage are as follows:—

(a) For vessels under sail, \$2 per foot draught of water and 1 cent per net registered ton.

(b) For vessels in tow of a steamer, \$1 per foot draught of water and 1 cent per net registered ton.

(c) For steamers, \$1 per foot draught of water. and 1 cent per net registered ton.

The pilotage from Cape Flattery or Royal Roads to a line drawn from Point Atkinson to the nun buoy on Spanish bank, or to the limits of Howe sound and vice versa, is not compulsory, but if the services of a pilot are required, he shall be paid the following rates, viz.—

From Cape Flattery.. . . .	\$6 00 per foot.
“ Callum Bay.. . . .	5 00 “
“ Beechy Head.. . . .	4 00 “
“ Race Rocks or Royal Roads.. . . .	3 00 “



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And for vessels under steam or in tow of a steamer, the following rates shall be paid:—

From Cape Flattery .. . . .	\$3 00 per foot.
“ Callum Bay .. . . .	2 56 “
“ Beechy Head .. . . .	2 00 “
“ Race Rocks or Royal roads (vessels under steam) ..	1 00 “
“ Race Rocks or Royal Roads (vessels in tow of a steamer.	1 50 “

The payment of pilotage dues is compulsory in the pilotage district of Vancouver.

R. H. ALEXANDER,  
*Chairman.*

PILOTAGE DISTRICT OF VICTORIA AND ESQUIMALT, B.C.

Pilot Commissioners.	Date of Appointment.	Age	Earnings.	Amount paid to each.
				\$ cts.
H. Goulding Wilson .. . . .	1912			
W. J. Stephens .. . . .	1912			
C. A. Kirk .. . . .	1912			
J. R. Saunders .. . . .	1913			
Geo. Okell .. . . .	1913			
<i>Pilots —</i>				
1. John Newby .. . . .	1891	66		3,826 96
2. William Cox .. . . .	1903	59		2,862 49
3. Charles Israel Harris .. . . .	1910	47		4,439 59
4. William H. Whiteley .. . . .	1911	52		4,016 95
<i>Apprentice pilots—</i>				
1. H. Parsons .. . . .	1914			100 00
2. L. Thompson .. . . .	1914			100 00
<i>Vessels which paid pilotage dues—</i>		Number	Tonnage.	Amount paid. \$ cts.
British steam vessels .. . . .		170	833,512	7,079 92
British sailing vessels .. . . .		3	9,771	188 68
Foreign steam vessels .. . . .		300	727,218	9,107 12
Foreign sailing vessels .. . . .		7	12,406	452 96
		480	1,582,907	16,828 68
<i>Receipts and expenditure—</i>			Receipts. \$ cts.	Expenditure, \$ cts.
From British ships .. . . .			7,268 60	
From foreign vessels .. . . .			9,560 08	
Special pilots work .. . . .			200 00	
Surplus, 1913 .. . . .			1,588 04	
Licenses .. . . .			1,000 00	
Pilots drawing surplus, 1913 .. . . .				1,588 04
Pilots drawings, 1914 .. . . .				15,145 99
Secretary's salary, 1914 .. . . .				600 00
Rent .. . . .				420 00
Printing .. . . .				18 75
Miscellaneous .. . . .				70 00
Exchange .. . . .				6 55
Special pilots .. . . .				200 00
Surplus .. . . .				1,567 39
			19,616 72	19,616 72



PILOTAGE RATES.

Vessels bound to other ports and coming to an anchor in Royal Roads, the pilotage shall be free, except the services of a pilot are employed, when pilotage according to the following graduated scale shall be payable:—Inside or north of Race:—

Rocks to Royal Bay.. . . .	\$0 75 per foot.
Beechy Head to Royal Bay.. . . .	1 50 “
Pillar Point to Royal Bay.. . . .	3 00 “
Cape Flattery to Royal Bay.. . . .	6 00 “

For vessels entering into or clearing from the undermentioned ports, the rates shall be as follows:—

Esquimalt Harbour:

Vessels under sail.. . . .	\$3 00 per foot.
Vessels under steam or in tow.. . . .	2 00 “
Steamers.. . . .	1 50 “

Victoria Harbour:

Sailing vessels under sail.. . . .	3 00 “
Sailing vessels in tow.. . . .	2 00 “
Steamers.. . . .	1 50 “

Vessels spoken by a pilot in keeping with the Act and by-laws and not accepting his services, shall only pay half the above rates.

Vessels proceeding from Victoria to Esquimalt, and vice versa, and having discharged or received a portion of their cargo in either harbour, and having paid full pilotage into either harbour, if proceeding with the assistance of steam, shall pay \$1.50 per foot.

Any fraction of a foot not exceeding 6 inches shall be paid for as half a foot, and any fraction of a foot exceeding 6 inches shall be paid for as a foot.

Removal from one part of either harbour to another part of the same harbour, \$10.

The payment of pilotage dues is compulsory in the pilotage district of Victoria and Esquimalt, B.C.

J. KINGHAM,  
*Secretary.*



PILOTAGE DISTRICT OF NANAIMO, B.C.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
				\$ cts.
J. S. Knarston .....	May, 1900.....			
T. Boyce.....	May, 1900.....			
I. E. Lowe.....	April, 1912.....			
Wm. Bennett.. ..	June, 1912.....			
<i>Pilots —</i>				
1. James Christensen.....	February, 1891 ..	73		1,937 70
2. J. E. Butler.....	November, 1894...	53		1,508 81
3. W. D. Owen.....	October, 1898.....	48		2,066 88
4. A. F. Yates.....	September, 1900...	62		2,066 88
5. J. Gasse.. ..	August, 1903.....	50		2,066 88
6. J. E. Foote.....	April, 1907.....	54		2,066 88
7. J. W. Butler.....	October, 1907.....	44		2,066 88
<i>Vessels which paid pilotage dues—</i>				
		Number	Tonnage.	Amount paid.
				\$ cts.
British steam vessels.....		80	350,535	10,363 89
Foreign steam vessels.. ..		94	179,601	7,727 66
Foreign sailing vessels.....		1	1,528	69 55
Scows and barges.....				2,123 33
		175	531,664	\$20,484 43
<i>Receipts and expenditure—</i>				
			Receipts.	Expenditure.
			\$ cts.	\$ cts.
To fees paid by vessels piloted.....			20,484 43	
Victoria and Nanaimo stations.....				882 31
Boat hire.....				381 75
Telegrams and telephones.....				153 20
Miscellaneous.....				124 00
Travelling expenses.....				4,050 00
Commission to collectors.....				229 01
Postage and light.....				26 25
Office rent.....				240 00
Secretary's salary and caretaker's.....				480 00
Patriotic fund.....				140 00
Cash to pilots.....				13,777 91
				\$20,484 43

PILOTAGE RATES.

Regular pilot rates are one cent per net registered ton, and one dollar (\$1) per foot draught.

Tow boats, fishing boats and small trading vessels are charged a flat rate of from \$10 to \$20 according to size. Barges carrying 2,000 tons and over are charged \$20; under 2,000 tons and over 1,000 tons, \$15; under 1,000 tons, \$10.

The payment of pilotage dues is compulsory in the pilotage district of Nanaimo, B.C.

JAMES CROSSAN.

Secretary.



PILOTAGE DISTRICT OF NEW WESTMINSTER, B.C.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
George S. Blakeley.....	January 12, 1914..	.....	.....	.....
Alfred E. White.....	January 12, 1914..	.....	.....	.....
Frederick J. Coultham.....	January 12, 1914..	.....	.....	.....
<i>Pilots—</i>				
L. H. Ford.....	15 October 1913..	57	.....	.....
Pilot is paid by the city of New Westminster, per month.....	.....	.....	.....	\$150 00
		Number	Tonnage.	Amount paid. \$ cts.
<i>Vessels which paid Pilotage Dues—</i>				
British steam vessel.....	.....	1	2,674	88 98
Foreign steam vessels.....	.....	11	3,756	255 15
Foreign sailing vessel.....	.....	1	1,289	53 80
		13	7,719	397 93
			Receipts. \$ cts.	Expenditure. \$ cts.
<i>Receipts and Expenditure—</i>				
Total receipts for 1914 city of New West- minster 90 per cent.....	.....	.....	397 93	358 13
Retained for office expenses 10 per cent.....	.....	.....	.....	39 80
			397 93	397 93

PILOTAGE RATES.

One dollar per foot draught; 1 cent per ton registered tonnage.

The payment of pilotage dues is compulsory in the pilotage district of New Westminster.

D. H. MacGORRAN,  
*Secretary.*



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PILOTAGE DISTRICT OF HALIFAX, N.S.

Pilot Commissioners.	Date of Appointment,	Age.	Earnings.	Amount paid to each.
				\$ cts.
M. C. Grant .....	June 20, 1892.....	.....	.....	
James J. Bremner.....	Mar. 19, 1883.....	.....	.....	
Frank Rudolf .....	Oct. 1, 1909.....	.....	.....	
James Hall.....	July 27, 1904.....	.....	.....	
Neil Hall.....	Nov. 26, 1908.....	.....	.....	
James E. DeWolfe.....	May 16, 1908.....	.....	.....	
<i>Pilots—</i>				
1 Frank Thomas.....	.....	.....	.....	2,129 20
2 Bernard Brackett.....	.....	.....	.....	2,129 20
3 William Hayes.....	.....	.....	.....	2,129 20
4 Wallace Brackett .....	.....	.....	.....	2,129 20
5 John Holland.....	.....	.....	.....	2,129 20
6 William Gorman.....	.....	.....	.....	2,129 20
7 Charles V. Martin.....	.....	.....	.....	2,129 20
8 Thomas Reyno.....	.....	.....	.....	2,129 20
9 Henry Latter.....	.....	.....	.....	2,129 20
10 James G. Renner.....	.....	.....	.....	2,129 20
11 Lamont Power.....	.....	.....	.....	2,129 20
12 Lawrence Hayes.....	.....	.....	.....	2,129 20
13 Edward Renner.....	.....	.....	.....	2,129 20
14 John Hayes.....	.....	.....	.....	2,129 20
15 James Spears.....	.....	.....	.....	2,129 20
16 William White.....	.....	.....	.....	2,129 20
17 Thomas Hayes.....	.....	.....	.....	2,129 20
18 France Mackey.....	.....	.....	.....	2,129 20
<i>Apprentice Pilots—</i>				
1 W. Latter .....	.....	.....	.....	106 02
2 C. Hanrahan.....	.....	.....	.....	106 02
3 John Brown.....	.....	.....	.....	106 02
4 Walter White.....	.....	.....	.....	106 02
<i>Vessels which paid pilotage dues—</i>		Number	Tonnage.	Amount paid.
				\$ cts.
British steam vessels.....	.....	818	1,595,050	32,164 55
British sailing vessels.....	.....	280	51,958	2,518 70
Foreign steam vessels.....	.....	112	49,808	5,679 40
Foreign sailing vessels.....	.....	91	26,957	1,832 90
		1,301	1,723,773	42,195 55
<i>Pension Fund—</i>				
Dominion Saving Bank.....	.....	.....	.....	10,638 07
Dominion of Canada Stock.....	.....	.....	.....	9,212 36
Deposit Receipts.....	.....	.....	.....	20,214 75
Royal Bank of Canada (Current Account).....	.....	.....	.....	204 75
				40,569 93
<i>Receipts and Expenditure—</i>				
Balance Jan. 1, 1914.....	.....	.....	Receipts. \$ cts.	Expenditure. \$ cts.
Pilotage fees.....	.....	.....	2,413 35	
Outward Pilotage.....	.....	.....	40,774 05	
Commission.....	.....	.....	1,421 55	
Paid Pilots.....	.....	.....	224 70	38,327 71
Superannuation.....	.....	.....		3,335 50
Expenses .....	.....	.....		980 40
Paid Apprentices.....	.....	.....		425 00
Paid Auditor.....	.....	.....		50 00
Paid Secretary.....	.....	.....		951 63
Balance December 31, 1914 .....	.....	.....		763 41
			44,833 65	44,833 65



PILOTAGE RATES.

Canadian vessels of 120 tons and under free.

	Inward	Outward.
Vessels under 200 tons.. . . . .	\$ 9 60	\$ 6 00
Vessels of 200 to 300 tons.. . . . .	13 20	8 40
Vessels of 300 to 400 " . . . . .	16 80	10 80
Vessels of 400 to 500 " . . . . .	19 20	12 00
Vessels of 500 to 600 " . . . . .	21 60	13 20

Vessels of 600 tons and over, 60 cents for every 100 tons additional or fractional part thereof inwards, and 30 cents outward. Outward pilotage for all vessels of 200 tons and upwards compulsory.

The payment of pilotage dues is compulsory in the pilotage district of Halifax, N.S.

J. W. CRICHTON,  
*Secretary.*

PILOTAGE DISTRICT OF SYDNEY AND NORTH SYDNEY, N.S.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
Captain T. Desmond.....	May 13, 1912.....			
R. T. J. Vooght.....	" 13, 1912.....			
F. C. Kimber (Secretary). . . . .	" 13, 1912.....			
Archibald McKinnon.....	Aug. 5, 1912.....			
Charles P. Livingston.....	Jan. 20, 1914.....			
<i>Pilots—</i>				
Yorke H. Barrington.....			1,316 77	1,316 77
Joseph Brown.....			1,191 13	1,191 13
Thomas Burke.....			1,221 75	1,221 75
E. D. Cann... . . . .			1,316 73	1,316 73
John Cann... . . . .			1,221 78	1,221 78
James H. Carroll . . . . .			1,137 17	1,137 17
John Carroll.....			1,137 18	1,137 18
Louis Carroll.....			1,191 12	1,191 12
Michael Curran.....			1,191 13	1,191 13
George Fraser . . . . .			1,286 68	1,286 68
William Langille.....			1,221 76	1,221 76
Lawrence Ling.....			1,221 78	1,221 78
John B. McGillvray .. . . .			1,105 85	1,105 85
James McGillvray . . . . .			1,221 78	1,221 78
Vincent McGillvray . . . . .			1,316 74	1,316 74
Dan A. McInnis.....			1,316 75	1,316 75
John McNeil.....			1,221 78	1,221 78
Thomas McNeil.....			1,191 13	1,191 13
John T. Mullins.....			1,316 76	1,316 76
Bernard Mullins.....			1,316 75	1,316 75
Henry Petrie . . . . .			1,316 75	1,316 75
E. F. Petrie.....			1,221 77	1,221 77
William Perry.....			1,221 77	1,221 77
Herbert Ratchford.....			1,221 76	1,221 76
Thomas Ratchford.....			1,221 76	1,221 76
A. R. Richardson.....			1,316 74	1,316 74
Peter Rigby.....			1,105 85	1,105 85
Thomas Roberts.....			1,221 78	1,221 78
Thomas Rudderham.. . . .			1,316 73	1,316 73
George Spencer.....			1,191 11	1,191 11
James P. Young.....			1,191 11	1,191 11
<i>Apprentices —</i>				
William D. McGillvray . . . . .			583 93	583 93
Frank McGillvray.....			658 39	658 39
W. B. Morrison.....			643 36	643 36
John Connell.....			610 88	610 88
Walter Petrie . . . . .			643 34	643 34
Emmett McGrath.....			595 53	595 53



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PILOTAGE DISTRICT OF SYDNEY AND NORTH SYDNEY, N.S.—*Concluded.*

	No.	Tonnage.	Amount paid.	
			\$	cts.
<i>Vessels which paid Pilotage dues—</i>				
British steam vessels .....	501	1,023,967	24,869	00
British sailing vessels .....	26	2,628	146	00
Foreign steam vessels .....	428	732,772	18,386	00
Foreign sailing vessels .....	12	2,875	135	00
	967	1,762,242	43,536	00
<i>Licenses to Masters and Mates—</i>				
To ss. Louisburg .....			100	00
" Cape Breton .....			100	00
" Cacouna .....			100	00
" Coban .....			100	00
" Corunna .....			100	00
" Nevada .....			100	00
" Morwenna .....			100	00
" Seal .....			100	00
			800	00
<i>Pension Fund—</i>				
Ex-Pilots Laurence Connell, Peter Burke, James Fraser, Maurice Doyle, Wm. Ratch- ford, John Fraser, \$50 each .....			300	00
Widows, M. Minnis, Mary Petrie, Margaret Petrie, D. D. Petrie, G. Townsend, Isabel McGillivray, Jane Brown, Mary Ann Brown, Catherine McGillivray, A. Ratch- ford, \$30 each .....			300	00
			600	00
<i>Receipts and Expenditure—</i>				
		Receipts.	Expenditure.	
		\$	\$	cts.
Balance December 31, 1913 .....		483 34		
Pilotage Receipts .....		41,945 08		
Relief .....		2 50		
White Flag Licenses .....		900 00		
Pilot Flag Licenses .....		102 00		
Boat Flag Licenses .....		4 00		
Commission .....		2,209 42		
Paid Pilots and Apprentices .....			41,945	08
Paid Collectors .....			875	00
Pensioners .....			600	00
Office rent and Collectors .....			100	00
Paid Superintendent .....			250	00
Paid Commissioners .....			775	00
Paid Secretary .....			500	00
Paid Secretary office rent .....			100	00
Legal and Miscellaneous expenses .....			222	29
Pilotage in hands of Archibald & Co. ....			67	00
Cash on hand .....			211	97
		45,646 34	45,646	34



PILOTAGE RATES.

	To Sydney.	To North Sydney.
For vessels under 100 tons.. . . .	\$ 6 00	\$ 5 00
From 100 to 150 tons.. . . .	7 00	6 00
“ 150 to 200 “ .. . . .	8 00	7 00
“ 200 to 250 “ .. . . .	9 00	8 00
“ 250 to 300 “ .. . . .	10 00	9 00
“ 300 to 350 “ .. . . .	11 00	10 00
“ 350 to 400 “ .. . . .	12 00	11 00

And for every additional 50 tons or fractional part thereof, \$1; for vessels 800 tons and upwards, \$1 for every additional 100 tons or fractional part thereof. Outward pilotage shall be the same as inward. Vessels upon being hailed by a licensed pilot outside the limits of the port, but within the pilotage district of Sydney, and refusing to, or not taking such pilot, shall pay half pilotage inwards; and upon being offered the services of a licensed pilot before being ready for sea and refusing the services of such pilot, shall be liable to half pilotage outward. Should the services of a pilot so offering be accepted by the master and afterwards declined, then the vessel shall be liable for full pilotage rates; and any pilot placed in charge of a vessel by the master shall be entitled to receive in addition to full pilotage rates, the sum of two dollars per diem for each day the vessel may be detained while he is waiting on her, through stress of weather or otherwise. And in case a pilot is taken to sea, the ship shall be responsible for his expenses, unless returned to the port of Sydney. Vessels spoken by a pilot outside of harbour limits or changing ports between Sydney and the ports of Lingan, Glace Bay, and Cow Bay, shall only be liable for inward pilotage at the loading port, unless a pilot be employed in changing ports, in which case full tariff rates will be charged. Pilots delivering orders outside of port limits to vessels to proceed elsewhere shall be entitled to receive full inward pilotage only for such vessels and pilots prevented from delivering orders after being received by them, by reason of the orders being signalled from light stations, shall be entitled to receive full inward pilotage; and if, in any case, another regular pilot belonging to the same port be found in charge, the amount of pilotage collected shall be equally divided between the pilot in charge and the pilot delivering orders. Vessels arriving from sea without being spoken inwards by a pilot shall be subject to half pilotage outward unless a pilot be employed, in which case full outward pilotage will be charged, the half pilotage in this case to be paid into the pilotage fund. Vessels calling for orders and remaining outside of harbour limits shall be exempt from outward pilotage unless a pilot be employed.

The payment of pilotage dues is compulsory in the pilotage district of Sydney and North Sydney.

F. C. KIMBER,  
*Secretary.*



## SESSIONAL PAPER No. 21

## PILOTAGE DISTRICT OF PUGWASH, N.S.

Pilot Commissioners	Date of Appointment.	Age.	Earnings.	Amount paid to each.
				\$ cts.
Elias King, Secretary.....	June, 1895			
Alfred King.....	1905			
Gordon MacDonald.....	May, 1911			
Charles Macfarlane.....	May, 1913			
Peter McLeod.....	May, 1913			
<i>Pilots—</i>				
1 Neil McIvor.....	1899	52		224 80
2 Clarence Reid.....	1891	61		
3 A. E. Seaman.....	1899	36		19 95
4 George Tuttle King.....	1903	35		
5 Frank Seaman.....	1913	35		204 70
6 Oliver King.....	1914	56		103 46
7 George Heather.....		22		
		No.	Tonnage.	Amount paid.
				\$ cts.
<i>Vessels which paid Pilotage dues—</i>				
British steam vessels.....		1	2,263	106 88
British sailing vessels.....		4	435	29 86
Foreign steam vessels.....		7	10,007	475 16
		12	12,705	611 90
			Receipts.	Expenditure.
			\$ cts.	\$ cts.
<i>Receipts and Expenditure—</i>				
Pilotage dues.....			611 90	
Paid Pilots.....				552 91
Paid Secretary Commission.....				29 08
Expenses.....				29 91
			611 90	611 90

## PILOTAGE RATES.

	Inward.	Outward.
Vessels of 80 and under 140 tons.....	\$ 6 00	\$ 5 00
“ 140 “ 230 “ .....	8 00	7 00
“ 230 “ 300 “ .....	10 00	9 00
“ 300 “ 400 “ .....	14 00	12 00
“ 400 “ 500 “ .....	16 00	14 00
“ 500 “ 600 “ .....	17 00	15 00
“ 600 “ 700 “ .....	18 00	16 00
“ 700 “ 800 “ .....	19 00	17 00
“ 800 “ 900 “ .....	20 00	18 00
“ 900 “ 1,000 “ .....	21 00	19 00

And all vessels over 1,000 tons, 2½ cents inward per ton and 2 cents per ton additional on the registered tonnage. All vessels under 80 tons accepting pilots pay, 5 cents a ton inward, and 4 cents a ton outward. Vessels over 1,000 tons after being safely moored by a pilot and employing a pilot to be moved again to loading berth, dock or wharf, from her first mooring, shall pay \$5 to the pilot so employed. Vessels under 1,000 tons registered tonnage except schooners of or under 300 tons, shall pay \$3 for moving or mooring, to the pilot so employed. All steamers employing licensed pilots to be rated at net tonnage.



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Any vessel in charge of a pilot detained outside for purposes of discharging ballast shall pay \$1.50 per day for such detention. All vessels in employing a pilot in going through the drawbridges of Pugwash or Port Philip harbour and going 1½ miles up either river beyond said bridges, shall pay in addition 2½ cents per ton each way.

The payment of pilotage dues is compulsory in the pilotage district of Pugwash, N.S.

ELIAS KING,  
*Secretary.*

PILOTAGE DISTRICT OF LOUISBURG, N.S.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
Thomas Townsend.....	Sept. 10, 1898			
W. W. Lewis.....	Sept. 10, 1898			
Michael Pope.....	Feb. 25, 1907			
John Dickson.....	Feb. 26, 1908			
<i>Pilots—</i>				
1 Pierce Pope.....	May 7, 1912.....	42	818 47	818 47
2 Thos. Wilcox.....	" 7, 1913.....	51	"	"
3 John Power.....	" 7, 1912.....	54	"	"
4 J. E. Tutty.....	" 7, 1913.....	55	"	"
5 W. H. Townsend.....	" 7, 1913.....	69	"	"
6 William Williams.....	" 7, 1912.....	46	"	"
7 Lewis Tutty.....	" 7, 1913.....	45	"	"
8 John Kelly.....	" 7, 1913.....	53	"	"
<i>Vessels which paid Pilotage dues—</i>				
British steam vessels.....		No. 139	Tonnage. 254,794	Amount paid. \$ cts. 4,372 39
British sailing vessels.....		45	25,371	755 40
Foreign steam vessels.....		72	118,246	2,137 93
Foreign sailing vessels.....		2	188	6 00
		258	398,599	7,271 72
<i>Receipts and Expenditures—</i>				
From British steam vessels.....			Receipts. \$ cts. 4,372 39	Expenditure. \$ cts. 282 83
From British sailing vessels.....			755 40	765 08
From Foreign steam vessels.....			2,137 93	6,547 81
From Foreign sailing vessels.....			6 00	
Docking ships.....			189 00	
Taking orders to ships.....			50 00	
Coast piloting.....			78 00	
Taking away in ship.....			7 00	
Commission and stationery.....				
Other bills to maintain service.....				
Paid pilots.....				
			7,595 72	7,595 72



PILOTAGE RATES.

					Inward.	Outward.
On sail and steamships of 80 tons to 120 tons.. . . .					\$ 4 00	\$ 3 00
"	"	120	"	200	6 00	4 00
"	"	200	"	300	7 00	5 00
"	"	300	"	400	8 00	6 00
"	"	400	"	500	10 00	8 00
"	"	500	"	700	11 00	9 00
"	"	700	"	1,000	13 00	11 00
"	"	1,000	"	1,500	15 00	12 00
"	"	1,500	"	2,000	16 00	14 00
"	"	2,000	"	2,500	18 00	16 00
"	"	2,500	"	3,500	22 00	18 00

Over 3,000 tons register, 1 cent per ton additional inward, and 1 cent additional per ton outward.

Winter pilotage after 30th November, up to and including 30th April, shall be 20 per cent additional to the above rates on sail and steamships.

The payment of pilotage dues is compulsory in the pilotage district of Louisburg, N.S.

THOS. TOWNSEND.  
*Secretary.*

PILOTAGE DISTRICT OF PICTOU, N.S.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
Captain Wm. McKenzie.. . . .	Oct. 19, 1912.....			
Captain Hector McKenzie.....	Oct. 19, 1912.....			
G. A. Carson.....	Oct. 19, 1912.....			
J. R. Davies.....	Oct. 19, 1912.....			
G. Adam Pringle.....	Oct. 19, 1912.....			
<i>Pilots—</i>				
1 Angus Smith.....	May 1, 1889.....	58	688 14	688 14
2 McGregor Fraser.....	May 26, 1899.....	47	79 81	79 81
3 Wm. McPherson.....	Mar. 3, 1903.....	40	587 16	587 16
4 Willard Fraser.....	Apr. 29, 1903.....	37	117 96	117 96
<i>Vessels which paid pilotage dues—</i>				
British steam vessels.....		27	39,817	1,185 05
British sailing vessels.....		10	1,577	64 00
Foreign steam vessels.....		7	7,243	288 02
		44	48,637	1,537 07
<i>License to Masters and Mates—</i>				
To ss. "Cascapedia".....				40 00
<i>Receipts and Expenditure—</i>				
Pilotage dues.. . . .			1,473 07	
Half pilotage.....			64 00	
License ss. "Cascapedia" .. . . .			40 00	
Pilot bonds.....			4 00	
Paid pilots.....				1,473 07
Expense.....				108 00
			1,581 07	1,581 07



PILOTAGE RATES.

				Inward.	Outward.
Vessels of	80 to	140 tons..	..	\$ 6 00	\$ 4 00
"	140 "	200 "	..	10 00	6 00
"	200 "	300 "	..	12 00	8 00
"	300 "	400 "	..	14 00	9 00
"	400 "	500 "	..	15 00	10 00
"	500 "	600 "	..	16 00	11 00
"	600 "	700 "	..	17 00	12 00
"	700 "	800 "	..	18 00	13 00
"	800 "	900 "	..	19 00	14 00
"	900 "	1000 "	..	20 00	15 00

Vessels of 1,000 tons and upwards 2½ cents inward, 2 cents outward.  
All vessels under 80 tons \$4 inward, and \$2 outward. Docking or moving vessels from anchorage in harbour, \$4.  
The payment of pilotage dues is compulsory in the pilotage district of Picton.

G. ADAM PRINGLE,  
*Secretary.*

PILOTAGE DISTRICT OF MINAS AND AVONPORT, N.S.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
Captain Stephen Smith .....	Apr. 9, 1907.....	.....	.....	.....
Captain R. Lawrence .....	Mar. 14, 1910.....	.....	.....	.....
Captain T. A. Masters.....	Mar. 14, 1910.....	.....	.....	.....
Benton Borden (secretary).....	Apr. 9, 1907 .....	.....	.....	.....
William McCulloch.....	Apr. 24, 1912.....	.....	.....	.....

No pilot appointed to date.  
No pilotage done during the year.

PILOTAGE RATES.

Canadian vessels of 120 tons and under, free.  
From the pilot boat anchored in the basin of Minas to Walton and anywhere between Walton and Tenecape, to Cheverie to Summerville, to Avondale, to Miller's Creek, to Wentworth, to Windsor, to Hantsport, to Avonport, to Horton Landing, to Wolfville, to Port Williams, to Picket wharf, to Canning, to anchorage below or above Horton Bluff light, on vessels under sail, barges in tow, or steamers:—

				Inward.	Outward.
On vessels over	120 tons and	under	200 tons..	\$ 9 60	\$ 6 00
"	200	"	300 "	13 20	8 40
"	300	"	400 "	16 80	10 80
"	400	"	500 "	19 20	12 00
"	500	"	600 "	21 60	13 20

Over 600 tons, inward, an additional three cents for every ton over 600 tons; outward, an additional two cents for every ton over 600 tons.  
From the pilot boat anchored in Minas basin to Pereaux, to Kingsport and Mill Creek:—  
On vessels of 120 tons and under, free.



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On vessels under sail, barges in tow, or steamers.

Pilotage rates.		Inward.	Outward.
Over 120 tons and under 200 tons..	.. .. .	\$ 8 00	\$ 5 00
" 200	" 300 .. .. .	11 00	7 00
" 300	" 400 .. .. .	14 00	9 00
" 400	" 500 .. .. .	16 00	10 00
" 500	" 600 .. .. .	18 00	11 00

Over 600 tons, inward, an additional two cents for every ton over 600 tons; outward, an additional two cents for every ton over 600 tons.

The payment of pilotage dues is compulsory in the pilotage district of Minas and Avonport, N.S.

BRENTON BORDEN,  
*Secretary.*

PILOTAGE DISTRICT OF BRAS D'OR LAKES, N.S.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
				\$ cts.
Captain Dan. McRae..	Sept. 11, 1903.....	.....	.....	
D. J. McRae.....	Sept. 11, 1906.....	.....	.....	
George Hallifield (secretary).....	Sept. 11, 1906.....	.....	.....	
<i>Pilots—</i>				
1 Archie Livingstone.....	1894....	66	.....	
2 Daniel Campbell.....	1894.....	51	.....	
3 George McKay.....	1894.....	61	.....	
4 William Carey.....	1895.....	63	.....	
5 Ingraham Carey ..	1897. ....	45	.....	
6 Nicholas Murphy.....	1909. ....	54	.....	
7 C. S. McNeil.....	1913. ....	45	.....	

Any moneys for pilotage were collected by the pilots and distributed among themselves.

PILOTAGE RATES.

Vessels of	Big Bras d'Or.	Port Devis.	St. Ann's.	Little Narrows.	Grand Narrows to boundary line of District	Baddeck.
Tons.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
120-200.....	5 00	7 00	7 00	11 00	12 50	8 00
200-250..	6 00	8 00	8 00	14 00	14 50	11 00
250-300.....	7 00	9 00	9 00	16 00	16 50	12 00
300-350 .....	8 00	12 00	12 00	17 00	17 00	12 00
350-400.....	9 00	12 00	12 00	18 00	18 00	13 00
400-450.....	11 00	14 00	14 00	19 00	19 50	15 00
450-500.....	11 00	14 00	14 00	19 00	19 50	15 00
500-600.....	12 00	15 00	15 00	19 00	20 00	16 00
600-700.....	13 00	16 00	16 00	20 00	21 00	17 00
700-800.....	14 00	17 00	17 00	21 00	22 00	18 00
800-900.....	15 00	18 00	18 00	22 00	23 00	19 00
900-1,000 .....	16 00	19 00	19 00	23 00	24 00	20 00
1,000-1,500 .....	18 00	21 00	21 00	24 00	25 50	22 00
1 500-2,000.....	21 00	24 00	24 00	26 00	27 50	25 00

The payment of pilotage dues is compulsory in the pilotage district of Bras d'Or Lakes, N.S.

GEORGE HALLIFIELD,  
*Secretary.*







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PILOTAGE DISTRICT OF TIDNISH AND NORTHPORT, N.S.

Pilot •Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
				\$ cts.
Chas. W. Ackles (Secretary). . . . .	Jan., 31 1914.			
John Campbell . . . . .	May, 1 1901.			
David Mitchell. . . . .	June, 15 1903.			
Harvey Angus. . . . .	June, 19 1902.			
<i>Pilot</i> Walter Ackles. . . . .	1 March, 1914 . . . .	38		30 00
		No.	Tonnage.	Amount paid.
<i>Vessel which paid pilotage dues -</i> Foreign sailing vessel. . . . .		1	1,000	31 50
			Receipts. \$ cts. 31 50	Expenditure.
<i>Receipts and expenditure</i> Pilotage fees. . . . .				
Paid to pilot. . . . .				30 00
Paid to secretary. . . . .				1 50
			31 50	31 50

PILOTAGE RATES.

Vessels coming to any point between Lewis head and the division line between the province of Nova Scotia and New Brunswick, shall pay inward pilotage dues at the rate of one dollar per foot draught of water, and vessels from the same point shall pay outward pilotage dues at the rate of one dollar per foot draught of water.

For shifting a vessel from the ballast ground to the loading ground when service of pilot is offered, \$2.50.

The payment of pilotage dues is compulsory in the pilotage district of Tidnish and Northport, N.S.

CHARLES W. ACKLES,

Secretary.



PILOTAGE DISTRICT OF PARRSBORO, N.S.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
				\$ cts.
James E. Pettis.....	1881.			
Edward Gillespie.....	1889.			
Pilot—				
Joseph Anderson .....	13 July, 1906 .....	40	.....	751 92
		No.	Tonnage.	Amount paid.
Vessels which paid pilotage dues—				
British steam vessels.....		10	20,650	692 50
Foreign steam vessels.....		2	8,501	116 00
		12	29,151	808 50
			Receipts.	Expenditure.
			\$ cts.	
Receipts and Expenditure—				
Pilotage fees.....			808 50	
Paid to pilot.....				751 92
Secretary's salary and contingencies.....				56 58
			808 50	808 50

PILOTAGE RATES.

Inward pilotage rates \$1.25 to \$2.50 per draught foot for sailing vessels, and 50 cents additional for steamers (per draught foot).

Outward pilotage rates \$1.50 to \$2.50 per draught foot for sailing vessels and 50 cents per draught foot for steamers.

The payment of pilotage dues is not compulsory in the pilotage district of Parrsboro, N.S.

E. GILLESPIE,  
*Secretary.*

PILOTAGE DISTRICT OF INVERNESS SOUTH, N.S.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
J. W. Reynolds (chairman and secretary)..	March, 1904.			
J. J. Hennessay .....	"			
J. A. McDonald.....	"			

There have been no pilots in this district for the last eight years. Pilotage being not compulsory, ships refuse their services.

Rates of pilotage not in force at present.

J. W. REYNOLDS,  
*Secretary.*



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PILOTAGE DISTRICT OF ST. MARY AND LISCOMB, N.S.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
W. M. Murdock, sr.....	June, 10 1880...			
Captain D. F. Douglas.....	Feb., 7 1905...			
Clarence W. Anderson (secretary).....	Feb., 2 1907...			
James Hemlow.....	Feb., 2 1907...			
<i>Pilots—</i>				
Edward Quinn.....				2 00
John Burns.....				
S. McKenlay.....				5 00

PILOTAGE RATES.

For the Port of Liscomb.

	Inward.	Outward.
Vessels of 120 tons and under 160 tons..	\$ 5 00	\$ 7 00
“ from 160 “ up to 230 “ ..	6 00	8 00
“ “ 230 “ “ 400 “ ..	9 00	11 00
“ “ 400 “ “ 500 “ ..	11 00	13 00
“ “ 500 “ “ 600 “ ..	14 00	15 00

Vessels from 600 tons and upward \$1 for every additional hundred tons or fractional part of a hundred.

	Inward.	Outward.
Vessels of 120 tons and under 160 tons..	\$ 5 00	\$ 7 00
“ from 160 “ up to 230 “ ..	6 00	8 00
“ “ 230 “ “ 400 “ ..	9 00	11 00
“ “ 400 “ “ 500 “ ..	11 00	13 00
“ “ 500 “ “ 600 “ ..	14 00	15 00

Vessels from 600 tons and upward \$1 for every additional hundred tons or fractional part of a hundred.

Vessels from 80 tons and under. 5 cents per registered ton inwards and outwards; this rate shall be up to McCutcheon’s wharf; all vessels under 80 tons proceeding to Sherbrooke or vicinity shall pay an additional two cents per ton.

The payment of pilotage dues is not compulsory in the pilotage district of St. Mary and Liscomb, N.S.

C. W. ANDERSON,  
*Secretary.*

PILOTAGE DISTRICT OF WALLACE, N.S.

Pilot Commissioners.	Date of Appointment.
John W. Morris (Secretary).....	June, 11, 1879.
Zebud. A. Mackay.....	April, 30, 1883.
F. K. Grant.....	Oct. 6, 1891.
<i>Pilots—</i>	
Alexander Potter.....	Aug., 1898.
Hudson Langille.....	Oct., 1892.

No pilotage done during the year.



PILOTAGE RATES.

	Inward.	Outward.
Vessels of 80 tons and under 160 tons.. . . .	\$ 6 00	\$ 4 00
“ 160 “ 230 “ . . . . .	9 00	6 00
“ 230 “ 400 “ . . . . .	12 00	8 00
“ 400 “ and upward.. . . .	14 00	10 00

On all vessels under 80 tons accepting the services of a pilot 5 cents per ton inward, and 4 cents per ton outward. Steamers rated at net tonnage. The above rates are for pilotage to or near the Wallace-Huestis grey stone wharf; up Wynn’s channel to the Plaster wharf or up the Fox Harbour channel.

Vessels requiring the services of a pilot to Wallace bridge shall pay 25 cents per foot draught, or if to the Wallace freestone quarries or up to the bay of the Abiteau, then the sum of 5 cents per foot each way additional.

The payment of pilotage dues is compulsory in the pilotage district of Wallace, N.S.

JOHN W. MORRIS.  
*Secretary.*

PILOTAGE DISTRICT OF ST. JOHN, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.
			\$ cts.
Henry Finnigan.....	1913.		
J. Willard Smith .....	1894.		
Harold C. Schofield .....	1911.		
John Chesley.....	1912.		
Jas. E. Cowan.....	1912.		
Jas. Lewis .....	1912.		
J. W. Thomas (secretary). .....	1912.		
<i>Pilots—</i>			
1 James Bennett .....	1882 . . .	57	1,663 72
2 Alfred Cline .....	1878.....	57	
3 Richard B. Cline .....	1898.....	43	79 30
4 Joseph Doherty.....	1874.....	68	2,809 90
5 Robert Doherty.....	1908.....	29	3,655 30
6 James H. Miller.....	1899.....	34	2,078 00
7 William Murray .....	1899 .....	40	3,205 10
8 Fenwick M. McKelvey.....	1908.....	28	2,558 25
9 William Quinn.....	1874 .....	67	1,492 82
10 Bartholemew Rogers .....	1881. . .	57	3,226 45
11 James S. Spears.....	1874 . . .	69	414 33
12 Wm. Spears.....	1908.....	28	1,856 15
13 Thos. J. Stone.....	1874 .....	61	2,211 32
14 William Scott .....	1878.....	58	1,251 15
15 John S. Thomas.....	1874 .....	66	1,330 97
16 Thomas Traynor.....	1874.....	61	1,668 30
<i>Apprentice Pilots—</i>			
John F. Abbott.....	June, 1910....	17	
William P. Traynor .....	1910 .....	18	
William Scott.....	1910.....	18	
Edward Lahey .....	April, 1914. . .	17	
George W. Miller.....	April, 1914 .....	17	
William L. Kelly.....	April, 1914.....	16	
William Richard.....	October, 1914 . . .		
James Pitt .....	April, 1914.....	16	



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PILOTAGE DISTRICT OF ST. JOHN, N.B.—*Concluded.*

(These apprentices are paid monthly by the boat to which they are attached.)

	Number	Tonnage.	Amount paid.
<i>Vessels which paid pilotage dues —</i>			
British steam vessels .....	228	757,345	\$ 23,778 12
British sailing vessels.....	87	27,403	2,620 11
Foreign steam vessels.....	33	36,719	2,275 39
Foreign sailing vessels.....	143	17,260	4,339 28
	491	868,727	\$ 33,012 93
<i>Pension Fund—</i>			
At credit of Pilot Fund, Dec. 31st 1913.....			15,334 22
By interest on bank deposits.....			443 50
5 p.c. from pilotage, \$1,615.55; amount from income acc. \$608.70.....			2,224 25
Licenses to pilots and pilot boats.....			95 00
			18,096 97
<i>Contract—</i>			
Pensions paid to pilots, widows and children.....			2,718 30
At credit of pension fund, Dec. 31st 1914.....			15,378 67
		Receipts.	Expenditure.
<i>Receipts and expenditure —</i>			
Balance 31st Dec. 1914.....		\$ 2,588 39	
25 cents per ft. on outward pilotage.....		1,896 32	
5 p.c. from net pilotage.....		1,615 55	
Licenses to (15) pilots.....		75 00	
Licenses to (2) pilot boats.....		20 00	
Interest on deposits.....			
Dominion Savings Bank.....		284 34	
Bank of Nova Scotia.....		159 16	
Pension Account pilots.....			993 30
Widows .....			1,725 00
Auditing.....			25 00
Rent and salaries.....			1,150 00
Stationery.....			28 85
Telephone.....			45 00
Light.....			3 27
Sundries.....			35 50
Accrued interest Dominion Savings Bank .....			284 34
Bank of Nova Scotia.....			159 16
Savings accounts deposit.....			2,000 00
Balance in Bank of Nova Scotia (current account).....			189 34
		6,638 76	6,638 76

PILOTAGE RATES.

Steamships.		Inward.	
1st District.. . . . .	\$ 2 00	per foot draught of water.	
2nd District.. . . . .	2 50	" "	
3rd District.. . . . .	3 00	" "	
		Outward.	
Steamships to Patridge island.. . . .	\$ 1 75		
Down the bay of Fundy (not compulsory).	2 75		
Sailing Vessels.		Inward.	
1st District.. . . . .	\$ 1 50	per foot draught of water.	
2nd District.. . . . .	1 75	" "	
3rd District.. . . . .	2 25	" "	
		Outward	
Sailing vessels to Patridge island.. . .	\$ 1 25		
Down the bay of Fundy (not compulsory).	2 00		
Transporting vessels up to 500 tons register.. . . .	\$ 2 50		
" of 500 tons and up to 1,000 tons.. . . .	5 00		
" of 1,000 tons and up to 4,000 tons.. . . .	10 00		
" of 4,000 tons and over.. . . .	15 00		

The payment of pilotage dues is compulsory in part in the pilotage district of St. John.

J. U. THOMAS,  
*Secretary.*



PILOTAGE DISTRICT OF MIRAMICHI, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
John C. Miller .....	Apr. 12, 1893..			
Wm. B. Snowball..	April 12, 1893..			
Ernest Hutchinson.	April 12, 1893..			
Allan Ritchie.....	April 12, 1893..			
John P. Burchill.....	Mar. 7, 1913....			
<i>Pilots—</i>				
Louis Jimmo.....	May 29, 1875.....	60	675 97	550 01
Maxime Martin.....	July 10, 1869.....	69	675 97	573 02
Alexander Wilson.....	July 10, 1871.....	68	675 97	573 01
Robt. J. Walls.....	Jan. 12, 1870.....	63	675 97	603 99
Wm. Walls, sr.....	April 20, 1875....	60	675 97	573 01
James Nowlan.....	April 28, 1877.....	63	675 97	573 01
George Sutton.....	April 28, 1878.....	63	675 96	560 01
James A. Nowlan.....	April 28, 1878.....	59	675 96	560 00
Joseph Jimmo.....	April 28, 1879.....	59		
James McCallum ..	April 28, 1880.....	70	675 96	560 01
John Martin.....	April 28, 1880. ....	55	675 96	560 00
Asa Walls .....	June 23, 1880. ....	55	675 96	573 00
William Walls jr.....	May 20, 1882.....	57	675 96	573 00
John Nowlan.....	June 21, 1872.....	58	675 96	573 01
Michael J. Jimmo.....	Nov. 1, 1899.....	47	658 57	636 09
George M. Nolan .....	Nov. 2, 1899.....	58	658 57	636 09
George Savay.....	Mar. 10, 1871.....	70	666 57	644 09
		Number	Tonnage.	Amount paid.
<i>Vessels which paid pilotage dues</i>				
British steam vessels .....		43	88,240	6,514 40
British sailing vessels.....		24	5,208	1,063 77
Foreign steam vessels.....		15	22,660	2,055 92
Foreign sailing vessels.....		20	7,821	1,037 16
		102	123,929	10,671 25
			Receipts.	Expenditure.
				\$ cts.
<i>Receipts and expenditure—</i>				
Inward pilotage.....				
Outward pilotage .....				
Removals.....				
R. J. Wall's annual payment.			10,771 25	
Total amount of deductions .....				1,439 90
Net balance paid to pilots .....				9,331 35
			10,771 25	10,771 25

PILOTAGE RATES.

When inward bound, \$2.25 per foot.  
And in addition to the above for all vessels propelled wholly or in part by steam, 2 cents per registered ton.  
When outward bound, \$2 per foot.  
And in addition to the above for all vessels propelled wholly or in part by steam, 2 cents per registered ton.  
For the removal and mooring of vessels of over 300 tons register, \$4.  
And where the distance of removal exceeds four miles 50 per cent additional on the above rate.  
Removals within a distance of one mile are not compulsory; but when pilots are requested to perform this service the charge is \$4.



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Steam tug-boats towing one or more barges with cargo, inward, may depart outward after having paid full pilotage for the tug and barges, inward, without paying any outward pilotage except on the tug.

Compulsory pilotage on all vessels over 119 registered tons.

The payment of pilotage dues is compulsory in the pilotage district of Miramichi.

B. N. CALL,  
*Secretary.*

PILOTAGE DISTRICT OF RESTIGOUCHE, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
Wm. F. Napier . . . . .	Dec. 6, 1905 . . . . .			
David Champoux . . . . .	Feb. 8, 1907 . . . . .			
John T. Mowatt . . . . .	Feb. 9, 1912 . . . . .			
James E. Stewart . . . . .	Mar. 2, 1912 . . . . .			
A. F. Carr (secretary). . . . .				
<i>Pilots</i>				
Joseph Elsliger . . . . .		58	891 04	891 03
Edward Elsliger . . . . .		49	891 05	801 03
Wm. Donahue . . . . .		47	891 03	891 03
Neil Neilsen . . . . .		40	891 00	891 03
Dan McNeil . . . . .		38	891 09	891 03
<i>Apprentices -</i>				
Charles Robertson . . . . .	Mar. 31, 1914 . . . . .	30	298 97	298 97
		Number	Tonnage.	Amount paid.
<i>Vessels which paid pilotage dues—</i>				
British steam vessels . . . . .		17	25,184	1,329 64
British sailing vessels . . . . .		16	3,414	559 00
Foreign steam vessels . . . . .		30	13,982	993 77
Foreign sailing vessels . . . . .		17	36,548	2,298 71
		80	79,128	5,181 12
			Receipts.	Expenditure.
			\$ cts.	\$ cts.
<i>Receipts and expenditure--</i>				
Pilot fees . . . . .			5,181 12	
Retained for licenses 6 pilots and 2 boats . . . . .				40 00
Commission including secretary's salary . . . . .				155 41
Expenses of boats and upkeep . . . . .				251 59
Cash paid to pilots . . . . .				4,455 15
Cash paid to apprentice . . . . .				298 97
			5,181 12	5,181 12

PILOTAGE RATES.

For every foot of water any ship or vessels shall draw at the time, inward or outward bound, in the port of Dalhousie, Benjamin, Beaver point, Nash creek, Jacquet's river, or any loading station east of Dalhousie on the bay of Chaleur, \$1.50; port of Campbelltown, \$2; Oak bay or any loading station east of same, west of Dalhousie, \$2, when ships proceed direct from sea.

Ships bound for Dalhousie, Benjamin, Beaver point, Nash creek, Jacquet river or any loading station east of Dalhousie, calling at any of the said harbours for orders or to discharge ballast cargo or otherwise on ship's account, \$1.50; and thence to the said port of loading stations on the bay of Chaleur, 75 cents per foot draught of such ships at the time.



Ships bound for Campbellton, Oak bay or any loading station east of Oak bay and west of Dalhousie, waiting at Dalhousie or any of the outer bay ports to discharge ballast or otherwise on ship's account, \$1.50; and thence to the said port of Campbellton, 75 cents; Oak bay or any loading station east of Oak bay, and west of Dalhousie, 75 cents per foot draught of such ship at the time and vice versa.

For removal of any ship, including the properly securing and mooring such ship. the following rates, viz.:—The sum of \$1.50 for ships not exceeding one hundred and twenty tons; the sum of \$2 for ships over 120 tons and not exceeding 300 tons; the sum of \$4 for ships over 300 tons and not exceeding 600 tons; and the sum of \$5 for all ships over 600 tons; and when the distance of removal extends four miles, fifty per cent additional to above rates. In addition to above rates all vessels propelled wholly or in part by steam shall pay one cent inwards and one cent outwards per net registered tonnage.

The payment of pilotage dues is compulsory in the pilotage district of Restigouche, N.B.

A. F. CARR,  
*Secretary.*

PILOTAGE DISTRICT OF CARAQUET, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
				\$ cts.
Colson Hubbard (secretary) .....	Nov. 11, 1881.....	.....	.....	
George Le Riche .....	Apr. 6, 1903.....	.....	.....	
Honore Duguay.....	June 29, 1910.....	.....	.....	
Chas. L. Robichaud .....	June 29, 1910.....	.....	.....	
J. Peter Piot.....	July 6, 1913.....	.....	.....	
<i>Pilots—</i>				
1 Lazare Gauvin .....	.....	.....	.....	
2 Charles Vibert .....	.....	.....	.....	
3 Alexander J. Nilson.....	.....	.....	.....	64 20
4 Joseph Cheassen... ..	.....	.....	.....	30 80
5 James Lantergue .....	.....	.....	.....	
6 Theotince H. Le Bouthillier .....	.....	.....	.....	
7 Pierre Le Bouthillier .....	.....	.....	.....	
<i>Vessels which paid pilotage dues—</i>		Number	Tonnage.	Amount paid.
British sailing vessels.....	.....	4	509	
Foreign sailing vessels.....	.....	3	563	194 20
		7	1,072	194 20
			Receipts.	Expenditure.
			\$ cts.	
<i>Receipts and expenditure—</i>				
L. Gauvin.....	.....	.....	1 00	
A. J. Nilson.....	.....	.....	1 00	
J. Cheassen.....	.....	.....	1 00	
J. Lantergue .....	.....	.....	1 00	
T. H. Le Bouthillier .....	.....	.....	1 00	
Pilotage fees.....	.....	.....	194 20	
Paid Pilots.....	.....	.....		95 00
Postage, stationery .....	.....	.....		0 50
Salary.....	.....	.....		4 50
On hand .....	.....	.....		99 20
			199 20	199 20



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PILOTAGE RATES.

\$1.25 per foot inwards, and \$1 per foot outwards.

The payment of pilotage dues is compulsory in the pilotage district of Caraquet, N.B.

COLSON HUBBARD,  
*Secretary.*

PILOTAGE DISTRICT OF SHEPODY BASIN, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
Isaac C. Prescott . . . . .	Oct. 10, 1912 . . . . .			
Watson Steeves . . . . .	Oct. 10, 1912 . . . . .			
B. T. Carter (secretary) . . . . .	Oct. 10, 1912 . . . . .			
<i>Pilots —</i>				
Luther Martin . . . . .	April 1914 . . . . .	65	455 27	455 27
Wm. J. Milburn . . . . .	April 1914 . . . . .	43	351 17	351 17
John C. Christopher . . . . .	April 1914 . . . . .	50	303 04	303 04
<i>Vessels which paid pilotage dues—</i>			Tonnage.	Amount paid.
British steam vessels . . . . .			295	28 00
British sailing vessels . . . . .			9,200	304 45
Foreign steam vessels . . . . .			18,245	638 46
Foreign sailing vessels . . . . .			4,060	138 57
			31,800	1,109 48
<i>Receipts and expenditure —</i>			Receipts.	Expenditure.
Pilotage fees . . . . .			1,109 48	
John C. Christopher, pilot license to April, 1916 . . . . .			20 00	
W. J. Milburn, pilot license to April, 1916 . . . . .			20 00	
Luther Martin, pilot license to April, 1915 . . . . .			10 00	
J. J. Christopher, boat inspection . . . . .			5 00	
W. J. Milburn, boat inspection . . . . .			5 00	
L. Martin, boat inspection . . . . .			5 00	
Paid to pilots . . . . .				1,109 48
Isaac C. Prescott, services and expenses . . . . .				15 00
Watson Steeves, services and expenses . . . . .				15 00
B. T. Carter, services and expenses . . . . .				15 00
B. T. Carter, inspecting boats . . . . .				5 00
Printing licenses, forms and district regulation . . . . .				
			1,174 48	1,174 48

PILOTAGE RATES.

Inward bound vessels pay pilotage at the rate of 1½ cents per register ton.

Outward bound vessels pay pilotage at the rate of 2 cents per register ton.

The payment of pilotage dues is compulsory in the pilotage district of Shepody basin.

B. T. CARTER.  
*Secretary.*



PILOTAGE DISTRICT OF BATHURST, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
John J. S. Hackey.....	May 16, 1903.....			
Henry White.....	Sept. 20, 1904.....			
Thomas Canty.....	Aug. 30, 1907.....			
Joseph Henderson (secretary). ....				
<i>Pilots—</i>				
1 David Ronalds . . . . .			153 99	153 99
2 Wm. Daley . . . . .			304 42	304 42
3 Peter Roy . . . . .			320 07	320 07
		No.	Tonnage.	Amount paid.
<i>Vessels which paid pilotage dues</i>				
British sailing vessels . . . . .		12	3,361	356 00
Foreign steam vessels.....		4	2,853	172 45
Foreign sailing vessels.....		10	4,732	298 60
		26	10,946	827 05
			Receipts.	Expenditure.
<i>Receipts and expenditure—</i>				
Amount received for pilotage fees.....			827 05	778 48
Amount paid pilots . . . . .				40 97
Paid Commissioners.....				7 60
Stationery, postage, etc . . . . .			827 05	827 05

PILOTAGE RATES.

From sea to ballast ground outside or to fork of the channel, \$1.20 per foot.  
To above forks, \$1.40 per foot.

Outward:

From below the forks, 80 cents per foot.  
From above the forks, \$1 per foot.

For moving a vessel, whether sail or steam, from the ballast ground to loading berths outside the bar, \$4.

From one loading berth to another outside the harbour, \$4.

From the ballast ground to inside the harbour above the usual loading ground outside the bar, half of the inward pilotage of \$1.40 per foot.

In addition to the rates paid by sailing vessels, steamers shall pay 1 cent per register on net tons inwards or outwards.

The payment of pilotage dues is compulsory in the pilotage district of Bathurst.

JOSEPH HENDERSON,  
*Secretary.*



PILOTAGE DISTRICT OF CHARLOTTE, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
				\$ cts.
Samuel Johnson .. .. .	April 2, 1874.....	.....	.....	
Jesse Dustan .....	June 8, 1901 .....	.....	.....	
Captain Richard Keay (secretary).....	Feb. 19, 1907 ..	.....	.....	
Pilot—				
Joseph Boyd (now dead).....	.....	.....	.....	205 00
		No.	Tonnage.	Amount paid.
Vessels which paid pilotage dues—				
British sailing ships .....	.....	3	672	20 00
Foreign sailing ships .. .. .	.....	18	4,991	185 00
		21	5,663	205 00

PILOTAGE RATES.

1. From Seal islands, Cross islands, Little river, southwest ledges of Grand Manan, Kent's island, Long Island bay, Moose river and Bailey Mistake, to St. Andrew's, St. Stephen or any harbour or loading place in the county of Charlotte (except Campobello or the lines), pilotage inwards or outwards, \$2.25 per foot.
2. From north head of Grand Manan, Beaver harbour and West Quoddy lighthouse to any port or harbour in the county of Charlotte (except Campobello or the lines), pilotage inwards or outwards, \$1.60 per foot.
3. From Head Harbour lighthouse to any port or harbour in the county of Charlotte, pilotage inwards or outwards, \$1.50.
4. From or to Campobello or the Lines, the pilotage inwards or outwards to be 20 cents per foot less than the above rates.
5. From Eastport or Green's point to any port or harbour in the county of Charlotte, pilotage inwards or outwards, \$1 per foot.
6. From November 1 to April 1, inward and outward bound vessels to pay 20 cents per foot over and above the rates above named.
7. Removing a vessel to or from St. Andrew's harbour to ballast ground, vessels from 80 tons to under 300 tons, \$2.50; 300 tons or upwards, \$3.
8. Removing a vessel from one loading place or harbour to any other loading place or harbour inside St. Andrew's bay, vessels from 80 tons to 200 tons, \$4; over 200 to 300 tons, \$5; over 300 tons to 400 tons, \$6; exceeding 400 tons, \$8.
9. Removing a vessel from any harbour or loading place inside St. Andrew's bay to any harbour or loading place outside St. Andrew's bay and within the county of Charlotte, pilotage inward or outwards, vessels of 80 tons and under 200 tons, \$6; 200 tons and under 300 tons, \$8; 300 tons and under 400 tons, \$10; 400 tons and upwards, \$12.
- The payment of pilotage dues is compulsory in the pilotage district of Charlotte, N.B.

RICHARD KEY,

Secretary.



PILOTAGE DISTRICT OF BAIE VERTE AND CAPE TORMENTINE, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$	\$ cts.
Ignatius Murphy .....	June 15, 1912.....	.....	.....	.....
Louis Gould.....	June 15, 1912.....	.....	.....	.....
Wm. Farquharson (Secretary). ....	June 15, 1912.....	.....	.....	.....
Jacob Allan .....	June 15, 1912.....	.....	.....	.....
<i>Pilots—</i>				
Jacob E. Allan.....	July 4, 1912... ..	48	.....	19 00
Nelson Tucker.....	July 4, 1912.....	42	.....	19 00
Captain Robert Anderson . . .	July 4, 1912.....	..	.....	19 00
		No.	Tonnage.	Amount paid
<i>Vessels which paid pilotage dues—</i>				
Foreign steam vessel. ....	.....	1	876	60 00
			Receipts.	Expenditure.
<i>Receipts and expenditure—</i>				
Pilotage fees.....	.....	.....	\$60 00	
Paid Pilots .. .	.....	.....	.....	57 00
5% commission... ..	.....	.....	.....	3 00
			\$60 00	60 00

PILOTAGE RATES.

- Steamers, \$2 per foot inward.
- Steamers, \$2 per foot outward.
- Sailing vessels, \$1.50 per foot inward.
- Sailing vessels, \$1.50 per foot outward.

The payment of pilotage dues is compulsory in the pilotage district of baie Verte and cape Tormentine, N.B.

WM. FARQUHARSON,

*Secretary.*



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PILOTAGE DISTRICT OF SHEDIAC, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$	\$ cts.
Michael Connors. ....	1906			
Charles Roberts .....	1906			
George McDevitt .....	1906			
D. J. Dorion .....	1906			
E. R. McDonald (secretary). ....	1906			
<i>Pilots—</i>				
Thomas McGrath.. ..		68		89 00
Cliff Hendricksen .....		53		89 00
Paul Le Blanc.....		70		89 00
		No.	Tonnage.	Amount paid.
<i>Vessels which paid pilotage dues—</i>				
Foreign steam vessels.....		2	2,911	197 94
Foreign sailing vessels .....		2	1,135	74 50
		4	4,046	272 44
<i>Receipts and expenditure—</i>			Receipts.	Expenditure.
Pilotage fees.....			272 44	
Paid pilots.....				267 00
Commission on pilotage dues.....				5 44
			272 44	272 44

PILOTAGE RATES.

\$1.50 per foot draught of water for vessels inward, \$1.50 per foot draught of water for vessels outward bound, and for the removal of any ship or vessel properly secured and moored, the sum of \$4 for each such removal. Hauling a vessel into the wharf or dock from the stream not to be considered a removal.

It was ordered on the 30th May, 1908, that all ships or vessels propelled by steam or driven by power other than sails, shall pay 4 cents per ton on her register tonnage in addition to the above rates.

The payment of pilotage dues is compulsory in the pilotage district of Shediac, N.B.

E. R. McDONALD,  
*Secretary.*



PILOTAGE DISTRICT OF HARVEY AND ALMA, N.B.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
			\$ cts.	\$ cts.
M. C. Anderson (secretary).....	June 29, 1901.....	.....	.....	.....
Isiah H. Copp .....	March 16, 1912.....	.....	.....	.....
Ramsford Butland.....	March 16, 1912.....	.....	.....	.....
<i>Pilots—</i>				
Captain Arthur Edgett.....	1914 .....	53	325 53	225 53
Captain Bedford Dickson.....	1914.....	38	224 80	224 80
Captain Alexander.....	1914 .....	49	224 80	224 80
<i>Vessels which paid pilotage dues—</i>				
British steam vessels.....		Number	Tonnage.	Amount paid
Foreign steam vessels .....		9	18,969	471 64
Foreign sailing vessels.....		5	8,133	252 44
		2	2,235	51 05
		16	29,337	775 13

PILOTAGE RATES.

1½ to 2 cents per registered ton in and out, according to distance.

The payment of pilotage dues is compulsory in the pilotage district of Harvey and Alma.

M. C. ANDERSON,  
*Secretary.*

PILOTAGE DISTRICT OF RICHIBUCTO, N.B.

	Date of Appointment.
<i>Pilot Commissioners—</i>	
W. J. Brait.....	May 8, 1888.
Frank Curran. ....	June 21, 1909.
Fred Ferguson (secretary) ..	June 21, 1909.
W. E. Forbes. ....	June 21, 1909.
Richard O'Leary .....	June 21, 1909.
<i>Pilots—</i>	
George Long.....	
James Long.....	
William Long.....	
Albert Long.....	
John Curivin.....	

There was no pilotage done during the year.

PILOTAGE RATES.

\$1.50 per foot inward and outward.

The payment of pilotage dues is compulsory in the pilotage district of Richibucto, N.B.

FRED. FERGUSON,  
*Secretary.*



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PILOTAGE DISTRICT OF ALBERTON, PRINCE COUNTY, P.E.I.

Pilot Commissioners.	Date of Appointment.	Age.	Earnings.	Amount paid to each.
James F. White (chairman).....	September 25, 1897 .....			
John T. Profit.....	August 25, 1905.....			
<i>Pilots—</i>				
Charles Gallant.....	May 28, 1913.....	45		
William Smith.....	May 1, 1913.....	42		

There was no piloting done during the year.

PILOTAGE RATES.

Vessels of 120 tons and under 250 tons, inward, \$1; outward, 80 cents.

Vessels of 250 tons and upwards, inward, \$1.50; outward, \$1.

And on all vessels under 120 tons, accepting the services of a pilot, eight cents per ton inwards and six cents per ton outwards.

The payment of pilotage dues is compulsory in the pilotage district of Alberton, Prince County. P.E.I.







## APPENDIX No. 11.

## SABLE ISLAND.

SABLE ISLAND, January 22, 1915.

Agent, Marine and Fisheries,  
Halifax, N.S.

SIR,—I beg to submit the following report for the year ending December 31, 1914:—

## REPAIRS MADE.

*Main Station.*—Shingled one side of warehouse roof and made a number of minor repairs, such as renewing doors, etc., to barns and other buildings.

*East Light.*—Repaired dwelling and barn.

*No. 4 Station.*—Repaired cow barn.

*No. 3 Station.*—Repaired cow barn and made storm sashes and doors for dwelling.

*No. 13 Station.*—Repaired dwelling.

## PAINTED.

East lighthouse.

No. 4 dwelling.

No. 3 dwelling.

No. 13 dwelling, two coats each outside.

Superintendent's dwelling inside.

Men's dwelling at Main Station, inside.

## BOATS ON HAND.

*Main Station.*—One (1) life-boat; two (2) surf boats; two (2) dories.

*No. 3 Station.*—One (1) life-boat; one (1) surf boat.

*No. 4 Station.*—Two (2) life-boats; one (1) surf boat (new); one (1) dory.

All the above boats are in fairly good condition. Returned old surf boat to Halifax, September 7, 1914, by C.G.S. *Lady Laurier*.

## FARMING.

Farming carried on with the usual success: stock killed: three (3) oxen weighing 1,750 pounds; twenty (20) hogs weighing 2,700 pounds.

Stock on hand: 65 horned cattle, 40 trained horses, 4 colts, 6 hogs.

## POPULATION.

Main Station: Superintendent Blakeney and family . . . .	5
Carpenter G. Warnell, cook W. Gill, boatmen W.	
Mott, M. McKenzie, C. Cleary, W. Cleary, C.	
Blakeney . . . . .	7
	—

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**APPENDIX No. 12.**

## BOARD OF STEAMBOAT INSPECTION, CHAIRMAN'S REPORT.

OTTAWA, August 26, 1915.

To the Deputy Minister of  
Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit, as follows, the annual report of the Steamboat Inspection Service, for the fiscal year ending March 31, 1915.

## STAFF.

I regret to report the death of Mr. William Laurie, inspector of boilers and machinery at Montreal, which took place on November 12, 1914. Mr. Laurie was the oldest of the inspectors of boilers and machinery attached to the department and his services were considered very valuable, he having at various times filled the position of deputy chairman of the board.

Owing to the growth of steamship traffic in the North Western provinces and the inconvenience to the public arising from the fact that the inspector for this district was stationed at Kenora, it was decided to appoint another inspector with headquarters at Edmonton to take charge of the inspection work in the provinces of Alberta and Saskatchewan and the Northwest Territories west of Hudson bay and north of the 60th parallel of north latitude. Mr. John T. Mathews of St. John, N.B., was appointed to this position on October 24, 1914, and after assisting the inspectors at St. John with the winter's work proceeded to Edmonton in February of this year to take up his duties.

Further progress was made with the revision of the rules for life-saving appliances for ships, and after the views of shipowners and inspectors had received consideration a final set of rules known as the "Rules for Life-Saving Appliances for Steamships" was approved by Order in Council, dated November 6, 1914, to come into force April 1, 1915.

Some further consideration was also given to the revision of Parts VII and IX of the Canada Shipping Act, as embodied in Bill 105.

## BOARD MEETINGS.

During the year, board meetings have been held to consider questions arising out of the regular work of the steamboat inspection service and also for the consideration of the life saving appliances rules above mentioned.

## CASUALTIES.

The following are the casualties reported from the several divisions during the year ending March 31, 1915.

## NOVA SCOTIA DIVISION.

On August 19, 1914, the ss. *Miner* was sunk by striking a submerged rock off Scatterie, C.B., and became a total loss. No lives lost.



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On September 21, 1914, the ss. *La Have* was burnt to the water's edge off Devil's island, Halifax, and became a total loss. No lives lost.

On September 26, 1914, the ss. *Cacouna*, whilst on a voyage from St. Johns, Newfoundland, to Sydney, C.B., sank off Ferry land, cape Race. No lives lost.

On October 20, 1914, the ss. *Boston* (Norwegian registry), whilst on a voyage to Havre, France, was lost in the North sea by striking a floating mine. No lives lost.

On November 10, 1914, the ss. *Sharon* left Sydney, C.B., for France with a cargo of rails and failed to report. It is supposed that this vessel struck a floating mine. The crew, numbering about 20, were lost.

On December 14, 1914, the ss. *Anita* (Norwegian registry), whilst on a voyage from Halifax to the West Indies with a general cargo was wrecked during a fog on North Caicos island, Turks island. No lives lost.

On January 9, 1915, the ss. *Kilkeel* was sunk by striking Bauld rock off Canso, N.S., becoming a total loss. No lives lost.

## NEW BRUNSWICK DIVISION.

Nil.

## QUEBEC DIVISION.

On July 12, 1914, the ss. *Canada*, while on a voyage from Campbellton to Montreal stranded at cap Chatte. The vessel was floated on the 22nd and taken to Montreal for repairs.

On September 18, 1914, the C.G.S. *Montmagny*, while on a voyage from Quebec to the gulf of St. Lawrence, collided with the steamer *Lingan* near Grant island and was sunk. Fourteen persons were drowned.

On October 16, 1914, the ss. *Muriel*, while on a voyage from Quebec to Rimouski with a barge in tow collided with the ss. *Batiscan* and sank, becoming a total loss. One man was drowned.

## SOREL DIVISION.

On May 24, 1914, the ss. *Berthier* caught fire from some unknown cause and became a total loss. No lives lost.

## MONTREAL DIVISION.

On June 13, 1914, the ss. *Rhoda*, while on a voyage from Laprairie to Montreal ran on a shoal and was subsequently dismantled. No lives lost.

On August 5, 1914, the ss. *Aid*, while lying at the wharf at Rockland was burnt to the water's edge, the cause of the fire being unknown. No lives lost.

On October 23, 1914, the ss. *Abitibi*, while running on lake Abitibi struck a rock and sank. No lives lost.

On November 6, 1914, the ss. *Ida E.*, while tied up at the wharf at isle Perrault sprang a leak and sank. One woman, a member of the crew, who failed to take advantage of the warning given was drowned. The boat has since been raised and placed in commission.

## KINGSTON DIVISION.

On October 15, 1914, the ss. *Miss Vandenburg*, while lying at her dock at Prescott was severely damaged by fire. The steamer was immediately repaired and replaced in commission. No lives lost.

On November 24, 1914, the tug *Shanley*, while lying at her dock at Kingston was partly destroyed by fire from some unknown cause. No lives lost.



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On December 1, 1914, the ss. *Navajo* with a cargo of damaged wheat from the stranded barge *Quebec* went ashore on Main Duck island, lake Ontario, and during the winter became a total wreck. No lives lost.

## TORONTO DIVISION.

On June 15, 1914, the dredge *Delver* foundered outside Port Dalhousie, Ont., one of the crew being drowned. The dredge was raised and is now in commission.

On August 6, 1914, the steam yacht *Wanda II* was totally destroyed by fire at Windermere, Muskoka lakes, Ont.

On September 24, 1914, the dredge *Essex* was totally destroyed by fire at Pelee island, Ont.

On November 10, 1914, the steam yachts *Rulo* and *Phæbe* were totally destroyed by fire which originated on the wharf to which they were moored at Gravenhurst, Ont.

## COLLINGWOOD DIVISION.

On August 19, 1914, the ss. *Rambler* was burnt at Warner bay, lake Huron. No lives lost.

On August 25, 1914, the ss. *Alva D.* was burnt at the North channel of Huron. No lives lost.

On September 2, 1914, the ss. *Thomas R. Scott* foundered off Lonely island, Georgian bay. No lives lost.

On October 29, 1914, the ss. *Glynn* was burnt in the North channel of lake Huron. No lives lost.

On January 26, 1915, the ss. *City of Midland* took fire while lying at the dock at Collingwood, the steamer is now being repaired. No casualties.

## PORT ARTHUR DIVISION.

Nil.

## MANITOBA AND NORTHWEST TERRITORIES DIVISION.

On September 9, 1914, the ss. *Mont Cashel* while at her dock at Winnipeg was severely damaged by fire. No lives lost.

On September 12, 1914, the ss. *Grenfell* was totally destroyed by fire at Dunvegan on the Peace river. No casualties.

## VANCOUVER DIVISION.

On June 13, 1914, the ss. *Vedder* caught fire when on the Stikine river about 20 miles from Wrangell, Alaska. The fire originated on the upper deck and the vessel burned to the water's edge and sank. No lives lost.

On August 19, 1914, the ss. *Prince Albert*, en route from Massett inlet, Queen Charlotte islands to Prince Rupert, stranded on rocks in Hecate straits. The passengers and crew were saved by the lifeboats but one child died from exposure while in a lifeboat. The vessel was afterwards salvaged and taken to Vancouver for repairs.

On February 15, 1915, the gasoline launch *B.B.* while being overhauled caught fire and was extensively damaged the interior of the vessel being completely gutted. No lives were lost. The vessel is now undergoing repairs.

On March 12, 1915, the ss. *Sea Lion* stranded on a flat reef in the south entrance of Active pass. The vessel was hauled off on March 21 and taken to Vancouver and docked, where it was found that the keel was badly broken and the hull strained. No lives were lost.



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On March 18, 1915, the tug *Alberni*, while assisting the stranded steamer *Sea Lion*, fouled a wire cable which was fast from the *Sea Lion* to the shore, and not being able to disengage quickly the *Alberni* heeled over until she filled, settled quickly by the stern and sank in 20 fathoms of water. No lives were lost.

## VICTORIA DIVISION.

On May 23, 1914, the ss. *Princess Maquinna*, while on a voyage from Holberg to Victoria struck the ground in Kyuquot sound, damaging stem and bow plating slightly. The vessel continued her voyage and was hauled out and repaired on her arrival in Victoria.

On June 20, 1914, the tug *Dominion* while manœuvring a vessel in Victoria harbour collided with the ss. *St. Lawrence* cutting into the starboard side below the water line. The vessel was beached to avoid foundering and finally salvaged and repaired. No damage was done to the *St. Lawrence*.

On July 19, 1914, the ss. *Princess Patricia*, while leaving Vancouver for Nanaimo collided with a boom of logs in tow of the tug *Freno* damaging her stem and bow plating. She continued her voyage to Nanaimo and proceeded to Victoria where the vessel was docked and repaired.

On August 21, 1914, an oil explosion occurred in the furnace of the boiler of the ss. *Gunhild*, doing irreparable damage to the casing, the explosion being due to non-efficient atomizing of the fuel oil at the burner. No one was injured. The boiler casing has since been renewed.

On August 26, 1914, the ss. *Princess Victoria* proceeding from Vancouver to Seattle, when approaching Point-no-Point, Puget sound, collided with the ss. *Admiral Sampson* outward bound from Seattle, cutting into the port side abreast of after hatch. The engines of the *Princess Victoria* were put slow ahead after striking thus filling the rent and enabling a number of persons aboard the *Admiral Sampson* to save themselves by climbing from ship to ship. Lifeboats and life rafts from the *Princess Victoria* were instrumental in saving 114 lives, 11 persons being lost. The *Princess Victoria* was able to proceed to Seattle and thence to Victoria where she was docked and repaired.

On August 30, 1914, the tug *Lorne* proceeding from Port Hammond to Vancouver stranded on San Juan island, Haro strait. Salvage operations proceeded and the vessel was floated and towed to Victoria in an extensively damaged condition where she is now laid up pending decision as to repairs or disposal.

On September 7, 1914, the ss. *Otter*, lying alongside the C.P.R. wharf at Victoria caught fire and was extensively damaged. Repairs have since been effected and the vessel made ready for service.

On October 27, 1914, the ss. *Princess Royal* on a voyage from Granby bay to Vancouver and proceeding through Sabine channel, struck the shore of Jedediah island, damaging her forefoot and remaining aground for 3 hours when she backed off and proceeded to Vancouver and Victoria. The vessel was repaired at the latter place and replaced in commission.

On November 12, 1914, whilst on a voyage from Port Alberni to Victoria the ss. *Tees* struck in Alberni canal, damaging stem and bow plating. The vessel proceeded to Victoria with water in the fore-peak, the necessary repairs effected and the vessel replaced in commission.

On December 18, 1914, the ss. *Venture* whilst approaching the wharf at Vancouver was run into by the *Princess Patricia* and slightly damaged on the starboard side above the water line. Temporary repairs were effected and the vessel resumed service until the end of the season when permanent repairs were carried out. The *Princess Patricia* sustained slight damage only.

The following is a statement showing the total number of inspections made, fees collected, during the period covered by this report:—



TABLE showing the Number of Inspections made, Fees collected, etc., during the Year ending March 31, 1915.

Division.	Number of Inspections Made with Gross Tonnage of Vessels Inspected.		Number of Vessels not Inspected with Gross Tonnage.		Total Number of vessels subject to Inspection when in Commission, with Gross Tonnage.		Number of Vessels added to the Dominion with Gross Tonnage.		Number of Vessels Lost, Broken up or Destroyed, with Gross Tonnage.		Fees Collected by Inspectors.	
	Vessels Registered or Owned in the Dominion.		Vessels Registered or owned elsewhere.		No.	Gross Tonnage.	No.	Gross Tonnage.	No.	Gross Tonnage.	On Account of Inspections.	On Account of Examinations of Engineers.
	No.	Gross Tonnage.	No.	Gross Tonnage.							\$	cts.
Nova Scotia.....	172	54,486	17	55,615	47	9,617	236	119,718	6	7,537	1,982 92	217 00
New Brunswick.....	154	27,794	16	19,829	30	21,608	200	69,231	5	714	392 96	76 00
Quebec.....	112	29,643	7	17,834	14	860	133	48,337	6	3,112	85 00	.....
Sorel.....	152	55,912	7	19,213	14	1,131	173	76,256	13	6,659	.....	194 00
Montreal.....	227	45,974	3	10,215	24	1,242	254	57,431	9	5,156	.....	185 00
Kingston.....	157	45,255	19	10,753	12	959	188	56,967	3	1,449	.....	121 00
Toronto.....	368	199,508	62	78,283	52	6,265	482	284,056	13	26,489	138 40	273 00
Collingwood.....	134	47,122	4	7,578	32	4,251	170	58,951	6	339	.....	83 00
Port Arthur.....	84	50,203	7	9,616	28	1,946	119	61,765	4	672	45 68	42 00
Manitoba and N. W. Provinces.....	98	10,120	....	.....	19	2,030	117	12,150	16	1,205	.....	40 00
Vancouver and Yukon.....	253	49,208	16	16,771	49	6,941	318	72,920	5	350	881 50	208 00
Victoria.....	126	67,545	28	13,471	39	6,043	193	117,062	8	933	515 60	129 00
Totals.....	2,037	681,770	186	289,181	360	62,893	2,583	1,033,844	82	17,241	\$ 4,042 06	\$ 1,577 00



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It has been found desirable in preparing the appendix to this report to re-arrange the tables so that the information contained therein may be more readily available. Tables will be found arranged as follows:—

- (1) Steamships inspected throughout Canada, arranged alphabetically.
- (2) Dredges, drill boats, grain elevators, etc., inspected, arranged according to districts.
- (3) Passenger barges towed, which, having no machinery aboard, are inspected by Hull inspectors only.
- (4) Steamships not inspected.
- (5) Steamships added to the Dominion.
- (6) Steamships lost, broken up, etc.
- (7) Inspection of ships' tackle, summary only.
- (8) Certificates of competency granted to engineers, with grade of certificates issued.
- (9) Temporary engineer certificates.

The appendix to this report will be printed separately as a supplement.

I have the honour to be, sir,

Your obedient servant,

T. R. FERGUSON,  
*Chairman.*



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## APPENDIX No. 13.

HARBOUR COMMISSIONERS REPORT OF MONTREAL, QUÉBEC,  
TORONTO, THREE RIVERS, VANCOUVER, PICTOU, AND  
BELLEVILLE.

REPORT OF THE HARBOUR COMMISSIONERS OF MONTREAL FOR THE YEAR 1914.

MONTREAL, February 15, 1915.

To Hon. J. D. HAZEN, K.C., M.P.,  
Minister of Marine and Fisheries,  
Ottawa, Ont.

SIR,—In compliance with section 51 of the Commissioners' Act, 57-8 Victoria, chapter 48, the Harbour Commissioners of Montreal herewith respectfully submit their annual report of operations for the year ended December 31, 1914, embracing a full account of all moneys by them received and disbursed and describing the improvements made and under way.

The year of 1914 will be remembered not only on account of the general feeling of uncertainty and extreme business conservatism, due to the financial depression that prevailed during the early months of the season, but particularly by the outbreak of hostilities in the Old World and the gigantic struggle still being waged on the battlefields of Europe.

Notwithstanding this, it is most gratifying to be able to place on record the steady progress made by the harbour of Montreal during the season which, from a constructive and financial point of view, has fulfilled the expectations of the commissioners.

## NEW LOAN OF \$9,000,000.

The money voted for the harbour improvements, outlined under the general scheme adopted in 1909, having been about expended in the fall of 1913, Parliament, early in the spring, voted the capital sum of \$9,000,000, under the Act 4-5 George V, chapter 41, in order that no delay might be caused in the work of improvement of the terminal facilities of the harbour and to provide for the construction of such additional facilities as are necessary to properly equip the same.

The commissioners have devoted much time and thought to a careful study of the different epochs in the history of the harbour, learning therefrom the fact that in almost every case the schemes or projects for the development of the harbour, adopted at the various steps in its advancement, have been found, before completion, inadequate, and that further works were necessary to cope with the ever-increasing requirements of its commerce and the railway and commercial growth of the country, in order to preserve the prestige of handling Canadian business through the port.

## INSPECTION OF HARBOUR OF MONTREAL BY H. R. H. THE DUKE OF CONNAUGHT.

A wish having been expressed by the Governor General to inspect the harbour, the commissioners on the 23rd April had the great honour of showing His Royal Highness over the works of improvement being carried out in the harbour, in all of which he manifested much interest.



SHIPPING.

The first vessel to arrive was the ss. *Corsican*, which steamed into the harbour on the 29th April, the commander, Captain Hall, being presented with the customary token.

In spite of the fact that upon the declaration of war many of the regular liners were requisitioned by the Dominion and Imperial Governments, and several lines automatically ceased their connection with the port, the season has nevertheless been a banner one, ninety-six more sea-going vessels arriving than last season, and the tonnage of ocean and inland vessels showing an increase of 650,455 tons.

To meet the withdrawing of the regular liners, many of the shipping companies chartered a large number of vessels, and diverted others from American ports to Montreal.

On the 21st August there were as many as 56 sea-going vessels in port, and for weeks after, following the outbreak of war, an average of forty vessels, caused by the difficulties of exchange and high rates of war risks. The situation, however, soon adjusted itself, through British command of the sea.

The usual statements are hereto appended, showing:—

- 1. The number and tonnage of all vessels.
- 2. Classification of transatlantic vessels.
- 3. Classification of vessels from the lower St. Lawrence and Maritime Provinces.
- 4. Number and tonnage of sea-going vessels and their different nationalities, also the number of men that manned the vessels.
- 5. The opening and closing of navigation, the first arrival and last departure of vessels and the greatest number in port at one time.

Included in the above statements are 224 tramp vessels, the arrival of which in the port has in a large measure been responsible for the record established. These vessels were employed as follows:—

3	vessels	took	complete	cargoes	of	flour.
2	"	"	"	"		transports
3	"	"	"	"		horses
4	"	"	"	"		hay
173	"	"	"	"		grain

39 vessels took mixed cargoes.

With such an expansion or increase in tonnage as is shown in the following statement of the shipping of the port, it is hardly necessary to emphasize the necessity of building, with all vigour, additional berthing accommodation to keep pace with the continual increase of shipping demands:—

1895..	2,013,103	tons
1900..	3,000,000	"
1905..	4,725,607	"
1910..	6,561,021	"
1914..	9,044,457	"

Every American port is getting ready to cope with the trade resulting from the natural growth of world commerce, consequent upon the normal increase of population and potentially from the large amount of entirely new business which inevitably will result from the opening of the Panama canal.

No sentiment is attached to the distribution of trade. If natural and artificial advantages are sufficient, if freight rates are favourable and suitable, if wharfage accommodation can be had, one port is absolutely as good as another in the eyes of the practical steamship manager. Montreal has the natural advantages, enjoys a very



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substantial preferential inland water and railroad freight rate over most of her rivals, and only the lack of accommodation will prevent her from reaping a large reward in the growth of her trade.

## NEW STEAMSHIP SERVICES.

At the beginning of the season the Hamburg-American Line leased shed No. 47, Tarte pier, established a fortnightly service between Montreal and Hamburg, which was discontinued upon the outbreak of war.

The Roth Line also inaugurated a fortnightly service between Montreal and Antwerp.

The C. P. R. liner *Missanabie* and Cunard liner *Alaunia* entered the St. Lawrence service in Montreal, and the steamship *Aurania*, now being completed by the Cunard Line for the Canadian trade, is expected upon the opening of navigation, 1915.

The Sincennes-McNaughton Co. also added to its fleet four tugs.

## HARBOUR MASTER'S DEPARTMENT.

On the 8th of June, Capt. L. A. Demers resigned the position of harbour master, to accept that of Dominion Wreck Commissioner, and was succeeded by Capt. T. Bourassa, deputy harbour master. Capt. Frank J. Symons, R.N.R., was appointed deputy harbour master.

## POLICE DEPARTMENT.

This department, now in its second year, regulates the traffic on the wharves, maintains order, and protects life and property within the limits of the harbour.

The appointment of a practical chief of police was accomplished by the engagement in March of Capt. James Coleman, under whose direction the department has been fully organized and increased.

Twenty constables were sworn in on the 15th April, upon which date was commenced the patrolling of that portion of the harbour between the entrance of the Lachine canal and the Sutherland pier, a distance of  $3\frac{1}{2}$  miles. On the declaration of war, the staff was increased to thirty-six, in addition to which Dominion police established a force of forty constables. Working in harmony with the harbour force, and aided by a large number of the city constables, a system was inaugurated whereby access to the wharves was prohibited except by special pass. Armed constables guarded every entrance, as well as the elevators and ships, every possible precaution being taken to ensure their safety, so as to permit of a continuance of exports to the Motherland.

During the season of navigation, the police attended the arrival and departure of every passenger vessel, and it is a pleasure to be able to state that not a single piece of baggage was reported to have been stolen from passengers, or from the different transfer agents, and not an assault or robbery with violence was reported to have been committed within the harbour.

As the primary object of the police is the prevention of crime and protection of life and property, the efforts of the constables have in that direction been very successful, as also in the regulating of traffic at the different entrances, with a view to avoiding accidents, not a single one having occurred on the railway tracks during the season, notwithstanding the free movement of trains at all hours.

In order to provide additional protection to life and minimize drowning accidents, a course of instruction in first aid was given to the officers and constables, all of whom are essentially first-class swimmers. One hundred and twenty-four persons were arrested and brought before magistrates and recorders for different minor offences during the season.



## RAILWAY TRAFFIC DEPARTMENT.

*Winter Operation.*—During the winter season of 1913-14 but one of the high level sheds was used, the C. P. R., as in previous years, occupying shed No. 8, King Edward pier, as a distributing and sorting station for import freight from the winter ports. Sheds Nos. 10 and 11, used in the previous years by the Canadian Northern and Grand Trunk railways, respectively, owing to the general trade depression, were unoccupied, and the consequent diminution in railway traffic was manifested to a great extent, the winter season showing a decrease of 30 per cent.

*Car Handling.*—The regular traffic of the season of navigation began in the latter days of April, and the returns of cars handled for the year are most gratifying, the loss in the winter season, noted above, having been made up by the end of the year.

Following the outbreak of war, traffic conditions became deranged, the regular import and export business, in a large measure, giving way to the handling of horses, hay, wagons, and other 'war stores for the British and French Governments.

*Passenger Traffic.*—In connection with the mobilization of the first Canadian contingent, more than thirty passenger trains, with officers, men, and equipment, arriving in Montreal via the G.T.R., were transferred over the harbour terminals to section 46, and there delivered to the Canadian Northern for furtherance to the Valcartier camp. Not the slightest mishap or delay occurred in the operating of these trains, and during this period the suitability of the arrangements in the terminals for handling passenger business direct from cars to steamers, and vice versa, was also fully demonstrated.

*Coal Transportation.*—A new line of traffic was developed during the summer by this department in the transporting of coal from the coal towers at section 35 to the various industries situated along the harbour front, having direct rail connections with the harbour tracks. Fifteen 50-ton all-steel dump coal cars of the most improved type, made in Canada, were purchased for this service early in the summer, and proved very satisfactory, there having been conveyed no less than 40,000 tons. As an adjunct to this service, the commissioners had an up-to-date 150-ton railway track scale installed at section 48, over which nearly 2,000 cars were weighed. This scale has also filled a long-felt want in providing means of obtaining an accurate check of the carload shipments of materials used in the harbour works. Many favourable comments were received from the industries served with coal in the said manner, the operation having saved them considerable in cartage and handling.

*Locomotive Repairs.*—The general repairs to the locomotives were done at the engine-house during the winter in an efficient manner. The usefulness of these shops is increasing as the scope of the work carried on is being extended. All work on the motive power and rolling stock is now being done within these works at a lesser expense than when given out by contract.

*Railway Traffic—New Sheds.*—Before sheds Nos. 24 and 25 were completed they were taken over by the Department of Agriculture for the pressing of hay for the British Government, since which the railway traffic to these sheds has been exceedingly heavy, and ample opportunity furnished to prove the advantages of the sheds for railway work. The track layout, giving access to the sheds from both ends and on the river side, is an excellent feature.

During the season it has been shown that all railway traffic, irrespective of its nature, can be operated with despatch and efficiency, which in itself is the precursor of constant development in new lines of traffic, of which but the beginning was made this year.



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*Extension of Railway.*—Late in the fall the extension of the railway embankment from the Racine pier eastwards was begun. As wharves are built between Longue Pointe and Pointe aux Trembles, thus extending the harbour front, the railway must follow, as a necessary integral part of the same. It is hardly necessary to call attention to what the building of the harbour railway means from a factory or industrial standpoint. An industry located on the line of the harbour railway not only enjoys the convenience of having direct connection with every avenue of transportation in and out of the city, but is also in an enviable position in so far as freight-rate competition is concerned. An industry located on the railway, miles from the city where the land is cheap, is in the same position, as far as the development of its business is concerned, as if it occupied a location on the river front, opposite the heart of the city. The development of the railway makes toward a reduction of the handling and distributing charges in the port, thus offering advantages to industries to locate along its lines, and assisting them in competing in the markets of the world.

## HARBOUR BOUNDARY.

Early in the season, Mr. Jos. Rielle, Q.L.S., was instructed to prepare *procès verbaux*, defining and determining the boundary line between the harbour property and that of the adjoining proprietors of that portion of the harbour extending from Longue Pointe church to Bout de l'Isle, as enacted by 8-9 Edward VII, chapter 24, 1909. The *procès verbaux* have all been prepared and signed for and on behalf of the commission.

## CONVENTION AT BALTIMORE.

On the 8th, 9th, and 10th September, the secretary, Major David Seath, represented the commissioners at the third annual convention of the National Association of Port Authorities of the United States, held at Baltimore, Maryland.

As the purpose of this association is to exchange information relative to port construction, maintenance, operation, organization, administration, and management, and to formulate recommendations for the standardization of port facilities, as also for the encouragement of waterborne commerce, much valuable data were gleaned from the twelve papers presented with regard to the systems employed at other ports.

The most important feature of the convention was the changing of the name of the association to that of the American Association of Port Authorities, in order to admit membership of those engaged in harbour work in Canada and Mexico.

## MOFFAT'S ISLAND.

The commissioners have acquired, by authority of an Order in Council, Ile à la Pierre, commonly known as Moffat's island, near St. Lambert, from the Grand Trunk Railway Co. In order to lessen the St. Mary's current, and provide a channel between St. Helen's island and the south shore, the removal of part of Moffat's island is necessary for the purpose.

## INSPECTION OF ST. JOHN HARBOUR.

In the latter part of December, on the invitation of the Minister of Marine and Fisheries, Commissioners Robertson and Labelle devoted two days to the inspection of the development being carried on in the harbour of St. John, N.B., the sudden illness of the president preventing him from accompanying his colleagues.

Every courtesy was accorded them to get first-hand knowledge of the existing equipment of the port, and to study the plans prepared for its future development which will provide exceptional facilities to take care of the business which should be diverted to that port during the winter months, when navigation at Montreal ceases.



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Trade captured by the port of Montreal during the summer should be handled through St. John or Halifax during the winter, and not be permitted, through lack of enterprise or facilities, to be diverted to American ports.

It is hoped that the visit will result in closer co-operation between the harbour of St. John and the harbour of Montreal in an endeavour to secure and retain Canadian trade for Canadian channels.

#### WAR CONDITIONS.

Immediately after the outbreak of the war, the commissioners devoted considerable time and attention to facilitating the forwarding of supplies to the Mother Country and the Allies, as well as the Belgian relief gifts. Fortunately, the new sheds Nos. 24 and 25 were approaching completion and were forthwith placed at the disposal of the Government for the pressing and shipping of hay, which was carried on day and night. A railway yard and special railway tracks were immediately installed to facilitate the quick despatch of the same.

During the season of navigation the hay was pressed and loaded directly into ships alongside the sheds; since the closing of navigation, the hay is taken as it comes from the farmers, pressed and loaded into cars on the other side of the sheds and shipped directly to the Canadian winter ports. At the present time, hay, compressed from the farmer's bale of 18 cubic feet to the shipping bale of 6 cubic feet, is being shipped to the seat of war, at the rate of twenty or thirty cars daily. The advantageous sale of this hay, the work of compressing, the switching in and the switching out, are all of great benefit to the Montreal community.

The immense gifts of flour from Canada, and foodstuffs from the various provinces, horses and other supplies were shipped through the sheds of the various steamship lines, taxing their capacity to the utmost.

These most important features of the season's record resulting from the changes due to the war, commencing at midsummer, caused no little congestion and anxiety. Harbour and trade conditions were suddenly changed. Shipping programmes were wiped out, and freight contracts upset. Until the silent but effective command of the seas was assured, business in the harbour was greatly disturbed. Fortunately, however, the measures taken to restore trade were so speedily effected and so successful that shipping immediately recommenced and, largely owing to the adaptive facilities in the port of Montreal, the required changes to meet new conditions of shipping and business were speedily made.

#### CANADIAN PATRIOTIC FUND.

A deserving record is desired to be made of the hearty response given by the officials and employees of the commission, who, by entirely voluntary subscription, contributed the munificent sum of \$2,862.27 to the above fund.

#### CEDING OF MOREAU AND MARLBOROUGH STREETS.

In order to provide for the rapid increase in harbour business, and the addition of further railway facilities, the commissioners some time ago acquired the property situated between Notre Dame street and the harbour boundary, for a distance of about 1,290 feet, fronting on Notre Dame street, starting from Desery street west.

As it is no longer necessary to provide access to the harbour by way of Moreau and Marlborough streets, inasmuch as the purchase of the above property extends the harbour up to Notre Dame street, by deed of agreement executed on January 9, 1914, the city of Montreal ceded to the Harbour Commissioners that portion of Moreau and Marlborough streets between Notre Dame street and the harbour boundary, the commissioners undertaking to construct a subway at Aylwin street and to pave the same to the city line.



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The following summary and comparison show what increased facilities have accomplished for the harbour of Montreal:—

<i>Tonnage of Vessels—</i>	Tons.
1895.. . . . .	2,013,103
1900 .. . . . .	3,000,000
1905.. . . . .	4,725,607
1910.. . . . .	6,561,021
1914 .. . . . .	9,044,457
<i>Receipts on Revenue Account—</i>	
1895.. . . . .	\$ 275,453 75
1900.. . . . .	287,069 18
1905.. . . . .	377,492 41
1910.. . . . .	836,115 17
1913.. . . . .	1,361,964 06
1914.. . . . .	1,466,364 27
<i>Traffic Department—Cars Handled—</i>	
1907.. . . . .	70,856
1908.. . . . .	60,266
1909.. . . . .	75,636
1910.. . . . .	79,466
1911.. . . . .	93,859
1912.. . . . .	112,911
1913.. . . . .	114,531
1914.. . . . .	114,449
<i>Grain Handled at Commissioners' Elevators—</i>	Bushels.
1906.. . . . .	944,321
1907.. . . . .	1,078,289
1908.. . . . .	8,661,350
1909.. . . . .	11,691,071
1910.. . . . .	21,526,727
1911.. . . . .	21,007,164
1912.. . . . .	25,561,655
1913.. . . . .	43,349,291
1914.. . . . .	62,318,814

## EXPORTS OF GRAIN, 1914.

It is to be noted in comparing the following figures that at Montreal the season of navigation is seven months, as against twelve months at the other ports:—

	Bushels.
Montreal.. . . . .	75,085,432
New York.. . . . .	64,532,190
Baltimore.. . . . .	45,000,000
Galveston.. . . . .	35,821,506
New Orleans.. . . . .	34,624,000
Philadelphia.. . . . .	23,294,252
Boston.. . . . .	16,555,340
Portland.. . . . .	9,500,000
St. John, N.B.. . . . .	6,269,000
Newport News.. . . . .	2,326,620

## PRINCIPAL EXPORTS OF PRODUCE FROM THE PORT OF MONTREAL.

	1913.	1914.
Wheat.. . . . .	33,706,089 bushels.	61,484,474 bushels.
Oats.. . . . .	7,297,570 "	8,536,589 "
Barley.. . . . .	5,218,390 "	4,552,273 "
Rye.. . . . .	210,804 "	335,030 "
Flaxseed.. . . . .	7,832,780 "	177,066 "
Flour.. . . . .	2,464,913 sacks.	2,762,139 sacks.
Meal.. . . . .	86,580 "	36,463 "
Eggs.. . . . .	.....	113,339 cases.
Butter.. . . . .	1,728 boxes.	7,228 boxes.
Cheese.. . . . .	1,571,502 "	1,482,958 "
Lard.. . . . .	579,739 bbls.	468,483 bbls.
Hams and bacons.. . . . .	9,893 pkgs.	4,180 pkgs.
Meats.. . . . .	112,725 lbs.	96,039 lbs.
Apples.. . . . .	209,926 bbls.	175,597 bbls.
Hay.. . . . .	261,719 bales.	495,966 bales.



SUMMARIZED STATEMENT of Operations for the Year ended December 31, 1914.

Items.	Totals. \$ cts.	Grand Totals. \$ cts.	Items.	Totals. \$ cts.	Grand Totals. \$ cts.
Receipts on Revenue Account.			Disbursements on Revenue Account.		
Collector of Customs:			Grain elevators and conveyor galleries, operation and maintenance. ....	262,347 10	
Wharfage dues on imports.....	217,642 11		Harbour sheds, insurance, maintenance, etc. ....	26,808 98	
Wharfage dues on exports.....	134,437 12		Electric team hoists, operation and repairs.....	3,733 98	
Total Customs wharfages.....	352,079 23		Electric transporters, alterations. ....	10,003 13	
Local wharfages and additional charges.....	90,804 87	442,885 10	Harbour repairs, railway maintenance and traffic department operation.....	208,674 98	
Grand total wharfage.....			Floating crane, operation and maintenance.....	5,485 36	
Grain elevator No. 1, elevating, etc.....	244,141 83		(The above expenditures do not include charges for interest, administration, depreciation, rental of tracks, space, etc.)		
Grain elevator No. 2, elevating, etc.....	306,394 75		Reconstruction Jacques Cartier pier. ....	1,850 97	
Floating elevators, elevating, etc.....	35,350 32		Electric lighting of harbour wharves.....	11,402 18	
Grand total grain elevators. ....		585,886 90	Harbour surveys and borings.....	3,730 17	
Rental of harbour sheds.....		166,303 69	Maintenance dredging in harbour.....	3,971 29	
Rental of electric hoists.....		6,034 50	Buoys and beacons.....	778 37	
Traffic department, switching cars, etc.....		196,002 27	Annuity.....	600 00	
Floating crane charges.....		5,398 50	Administration and miscellaneous expenses.....	134,425 60	
Rental of wharves.....	42,747 87		Total operation, maintenance, etc.....	673,812 11	
Rental of land.....	6,275 05		Interest on debentures, overdrafts, etc.....	785,642 97	
Rental of tracks.....	11,996 40		Disbursements on revenue account.....		1,459,455 08
Total rentals.....		61,019 32	Disbursements on Capital Account.		
Sundry receipts on revenue account.....		2,834 99	Altering lower end of guard pier....	3,326 66	
Receipts on revenue account.....		1,466,364 27	Widening inside guard pier.....	75 142 89	
Receipts on Capital Account.			Channel south of St. Helen's island. ....	121,483 98	
Dominion Government, advances under Act 1, Edward VII, chap. 9.....	22,500 00		Moffat's Island wharf removal.....	336 55	
Act 2, George V, chap. 36.....	2,209,500 00		Dredging between Ile Verte and guard pier.....	29,513 14	
Total advances by Government in 1914.....		2,232,000 00	Harbour dredging, total.....		229,808 22
Security deposits received from contractors.....		23,796 75	Real estate, Hochelaga and Moffat's island. ....		39,469 10
Grand total receipts.....		3,722,161 02	Victoria pier and Market Basin wharves.....		285,763 47
Deduct:					
Overdraft at Bank of Montreal, Dec. 31, 1913.....	423,073 28				



Less: Overdraft at Bank of Montreal, Dec. 31, 1914.....	305,771 15		High level wharves, sections 25 to 30.....	149,035 99	
Balance to deduct.....		117,302 13	Improvements, eastern section, float- ing dock and site.....	131,016 93	
		3,604,858 89	Pointe aux Trembles wharf.....	114,905 27	
(The above overdraft is for capital expenditure for which advances have been applied for from Domin- ion Government, but not received in 1914.)			Paving wharves and piers.....	55,029 07	
Deduct: Outstanding accounts, December 31, 1913.....	607,307 40		Windmill Point embankment, etc..	5,522 30	
Less: Outstanding accounts, December 31, 1914: Dominion Government interest, due January 1, 1915, included in 1914 disbursements for in- terest on debentures (see contra).....	349,606 25		Water pipes and drains.....	3,633 21	
Accounts payable.....	242,629 17		St. Helen's island wharf.....	155 80	
Balance to deduct.....		15,071 98	Wharves, piers and basins, total.....	745,062 04	
			New plant, tug, derricks, scows, etc.....	83,663 42	
			New harbour yard and engine house.....	24,573 00	
			Harbour railway tracks and sidings.....	115,236 44	
			Permanent sheds, sections 16, 24 and 25 and Tarte pier.....	345,246 56	
			Electric hoists, Alexandra and Jacques Cartier piers and in sheds, sections 24 and 25.....	31,878 10	
			Grain elevator No. 1 addition, east.....	91,289 90	
			Grain elevator No. 1 addition, west.....	17,914 34	
			Grain elevator No. 2 construction, Part II.....	33,227 71	
			Elevator No. 1, marine tower.....	1,000 00	
			Grain elevators, total.....	143,431 95	
			Disbursements on capital account, total.....		1,758,368 83
			Debentures Series C, due July 5, 1914, retired.....		3,217,823 91
			Security deposits returned to contractors.....		200,000 00
					20,954 25
			Grand total disbursements.....		3,438,778 16
			Balance at December 31, 1914: Cash on hand.....	4,008 09	
			Bank of Montreal, coupon account.....	100 00	
			Accounts receivable and in sus- pense.....	242,011 50	
			Materials in stock.....	319,157 04	
			Total balance at December 31, 1914.....	556,276 63	
			Less: Balance at December 31, 1913.....	405,267 88	
					151,008 75
					3,589,786 91

Certified: GEORGE SMART,  
Comptroller.

Certified: DAVID SEATH,  
Secretary-Treasurer.

Certified: RIDDELL, STEAD, GRAHAM & HUTCHISON, C.A.,  
Auditors.



The continuation, almost to completion, of improvements resulting in the Floating Dock basin and site for shipbuilding and repair yard.



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The construction and improvement of harbour facilities, such as hoists, flood gates, bridges, subways and freight yards.

Additions and improvements to Harbour Commissioners' construction plant.

The construction of an industrial wharf at Pointe-aux-Trembles.

The construction of addition to grain elevator No. 1.

The construction of a new subway to the harbour at Aylwin street.

The construction of two transit sheds, Nos. 24 and 25.

The maintenance of berths and channels, of wharves, sheds, buildings, roadways, water service, cleaning of wharves and general repairs.

The operating of floating crane, electric hoists, and the construction and maintenance of industrial connections with the harbour, were all carried on during the season with an even greater measure of success than usual.

The construction season resulted in economical work, the price of materials being lower than the average, and weather conditions were favourable, the low water being advantageous for construction work.

## GRAIN ELEVATOR SYSTEM.

The facilities for the storage and handling of grain in the port of Montreal are not only one of the most important in connection with the harbour, but were most successful during the operating season.

In 1907, the capital expenditure by the commissioners, for the storage and handling of grain, amounted to \$1,568,534.76. In that year, the total quantity of grain handled amounted to 1,078,289 bushels. The revenue did not pay the operating expenses and the maintenance and interest charges had to be made up from other sources.

During the season of 1914, when the capital expenditure on the harbour grain-handling facilities amounted to \$5,380,000, the total quantity of grain handled to December 31 amounted to 62,318,814 bushels.

With this large tonnage for handling, and with the revenue derived from storage of grain, the total returns resulting from the Harbour Commissioner's plant for the storage and handling of grain during the season will be sufficient to pay for not only interest on the buildings and operation, but also for upkeep.

In connection with the elevator system, the difference between the failure of 1907 and the success in 1914 is one of the most successful lessons to be learned in port design. The elevator in 1907 had been completed for three or four years; it was considered the most up-to-date and efficient elevator possible to build, and it was located in the best part of Montreal harbour. Ocean ships requiring to take grain, however, were required to move from their berths to the elevator for their cargoes. This resulted in loss of time, in removing of all gangways and in expenditure for pilotage, towing, etc. As the margin between one method of grain handling and another on a large tonnage of grain is very slight, the grain trade did not appreciate the Harbour Commissioners' elevator up to that date.

The construction of the large system of transit sheds, with grain conveyors to each berth and the organization of a very efficient operating staff, has, in a few years, effected a great change, and the increase of the Harbour Commissioners' share in handling of the Canadian grain trade in 1914, to an amount sixty times greater than it was seven years ago, is a remarkable record.

The investigations made by the harbour officials in April, 1914, as to the conditions and cost of grain handling in European ports, as compared with Montreal, resulted in information very favourable to the Canadian port.

In the port of London it was found that all construction costs, both material and labour, in connection with elevators are lower than in Montreal. Operating costs,



such as wages and supplies, were cheaper in London than in Montreal. The only item cheaper in Montreal than in London was power.

A comparison of the tariffs regarding storage and handling of grain resulted as follows:—

*Harbour Commissioners of Montreal*—Working out (shovelling), elevating, weighing, storage for twenty days, weighing and delivery by conveyors into ocean ships, 8-10 cent per bushel.

*Port of London Authority*—Working out, receiving from ship, weighing at delivery and delivering within fourteen days, 4s. 4d. per ton, or 2½ cents per bushel.

In addition to the very great difference in favour of Montreal, regarding tariff charges, the storage period is longer in Montreal, and the advantage in having ocean vessels receive their cargoes at their ordinary berths is much more favourable to Montreal.

OPERATION OF GRAIN ELEVATOR SYSTEM.

*Storage and handling of Grain, 1906 to 1914*

The total quantity of grain handled by the Harbour Commissioners' elevator system, exclusive of the grain handled at the Grand Trunk and other local elevators, shows what improved facilities have accomplished:—

Year.	Total quantity of grain received or transferred. Bushels.
1906.. . . . .	944,321
1907.. . . . .	1,078,289
1908.. . . . .	8,661,350
1909.. . . . .	11,691,071
1910.. . . . .	21,526,727
1911.. . . . .	21,007,164
1912.. . . . .	25,561,655
1913.. . . . .	43,349,291
1914.. . . . .	62,318,814

This has been handled as follows:—

At Grain Elevator No. 1—

1906.. . . . .	944,321
1907.. . . . .	1,078,289
1908.. . . . .	8,661,350
1909.. . . . .	11,691,071
Year.	
1910.. . . . .	14,906,569
1911.. . . . .	13,849,475
1912.. . . . .	16,179,503
1913.. . . . .	15,554,282
1914.. . . . .	28,477,151

At Grain Elevator No. 2—

1912.. . . . .	2,346,930
1913.. . . . .	20,819,055
1914.. . . . .	29,400,308

By Floating Elevators—

1910.. . . . .	6,620,158
1911.. . . . .	7,157,689
1912.. . . . .	7,035,217
1913.. . . . .	7,459,933
1914.. . . . .	4,441,355

The operation of the elevator system during the season of 1914 may be given as follows:—

Elevator No. 1—

- Total storage capacity in bushels, 2,500,000.
- First vessel unloaded, April 30, 1914.
- Last vessel unloaded, November 21, 1914.
- Total receipts, 28,477,151 bushels.
- The above amount of grain was elevated from 96 barges and 398 steamers, a total of 494 vessels.



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Delivery was made as follows:—

By conveyors, 27,635,810 bushels.  
To cars, 94,488 bushels.  
To teams, 47,344 bushels.  
By bags, 46,637 bushels.  
In store at end of season, 899,782 bushels.

Elevator No. 2—

Total storage capacity in bushels, 2,600,000.  
First vessel unloaded, April 29, 1914.  
Last vessel unloaded, December 7, 1914.  
Total receipts, 29,400,308 bushels.  
By water, 21,057,012 bushels, taken from 92 barges and 304 steamers, or 396 vessels.  
By cars, 8,343,296 bushels, unloaded from 5,759 cars.

Delivery was made as follows:—

By conveyors, 25,184,357 bushels.  
To cars, 1,521,934 bushels.  
To teams, 1,051,771 bushels.  
By bags, 1,498,879 bushels.  
In store at end of season, 1,296,523 bushels.

Floating Grain Elevators—

Total amount grain transferred, 4,441,355 bushels.  
Six floating elevators were operated during the season.

Grand Total grain handled in 1914, 62,318,814 bushels.

Total grain handled in 1913, 43,349,291 bushels.  
Increase over 1913, 44 per cent.

Some of the features of note regarding the grain trade in Montreal harbour during 1914, were the receipt of a cargo of corn from the Argentine Republic, the shipment of Canadian wheat to New Zealand, and the receipt of Canadian grain to the amount of about 1,500,000 bushels, re-shipped from Buffalo elevators. The corn was unloaded by one of the marine legs at elevator No. 2, the first time these marine legs were ever used in an ocean ship. The wheat going to New Zealand was bagged before shipping. The grain coming from Buffalo, part of which had wintered in the Buffalo elevators, was re-shipped and sent for export through the port of Montreal, and may be taken as a distinct approval of Montreal harbour facilities.

The harbour elevators were seriously congested in May and June and again in November, and at one time about thirty vessels were waiting to unload, containing approximately 1,500,000 bushels.

Although this large amount of grain, amounting to between one million and a half and two million tons, was handled by the Harbour Commissioners' elevator system, it was not successfully accomplished and delivered on long lengths of conveyor belts, in the complicated manner of grain shipments, without great care on the part of the elevator staff and a heavy expenditure in wages and operating power.

The regular number of men employed at elevators Nos. 1 and 2, on the conveyors and on the floating elevators, not including shovellers, was 125. The maximum requirements of electric power for operating the elevator system amounted to 5,570 horse-power.

No serious accident occurred to the plant during the summer, although the wear and tear of working day and night for about thirty weeks will require a large amount of overhauling, repairs, and renewals during the winter.

At the close of the season, the elevators contained 2,196,305 bushels of grain, subject to storage or delivery, as required.

*Grand Trunk Railway Elevator.*—In addition to the Harbour Commissioners' elevator, the Grand Trunk Railway Company own and operate elevator "B" and annex, between Windmill point and Lachine canal basin. This elevator is built upon a site leased to the company for a period of forty years. The tariff of charges, which is the same as applies at the Harbour Commissioners elevators, before becoming effective, requires to be approved by the Harbour Commissioners.



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The storage capacity of elevator "B" and annex is 2,150,000 bushels, and there were received during 1914, 20,538,460 bushels.

#### FURTHER STORAGE REQUIRED.

After completion of the addition to elevator No. 1, giving the Harbour Commissioners' elevators a storage capacity of 5,100,000 bushels, at a total cost, including working and storage elevators, marine tower, jetty, and marine towers, conveyor galleries and conveyor equipment, amounting to \$5,380,000, it was expected that with the Grand Trunk elevator and its addition, also completed in 1913, the grain trade in the port of Montreal could be taken care of without undue congestion or serious delays.

In spite, however, of this increase in storage capacity, completed in 1913 to the amount of 45 per cent, the grain storage capacity in the port of Montreal was completely filled up fifteen days after the opening of navigation, and although unprecedented shipments were being made, the congestion referred to above amounted to from fifteen to thirty lake grain vessels waiting to unload during two months of the season of 1914.

The commissioners immediately considered the question of a further addition to the storage capacity of the Montreal elevators. The year was not favourable for expenditure on new work, but the trade was very insistent.

After careful study, it was decided to make a further addition to elevator No. 1, and the west extension was designed on lines similar to the addition completed a year ago, and to be, in fact, a continuation westwards of the same structure. It was designed as large as the space in this part of the harbour would permit, and according to the plans will have a capacity, when built, of 1,500,000 bushels, which will give this elevator a total capacity of 4,000,000 bushels.

Owing to the filled ground in connection with all Montreal harbour improvements, and the high elevation of the wharves at low water, the founding of elevators in Montreal harbour is an expensive proposition. This is, however, much more than made up for by the excellent situation in connection with the harbour distributing and conveyor system, and representations were made to the commissioners that they would be well advised to build all the additional storage room possible at this site.

Plans and specifications of this west extension have been completed, and the commissioners are making preparations for the early commencement of construction, so as to have this additional elevator capacity in the port of Montreal ready for operation as early in 1916 as possible.

#### THE IMPROVEMENT AND EXTENSION OF THE HARBOUR RAILWAY TRACKS.

To make the port of Montreal the best possible terminal connection between the transcontinental railways systems of Canada and the North Atlantic steamships, the shore area of the harbour has been designed as a convenient railway terminal. The railway tracks being operated directly by the commissioners, such supervision can be made of traffic as to permit of extensive shunting and to give convenient access for railway freight to all points on the wharves at all hours, day or night.

The Grand Trunk and the Intercolonial railways connect with the harbour front at its extreme upper or westerly end. The Canadian Pacific and the Canadian Northern railways reach the harbour towards the lower or eastern end.

The large harbour transit sheds, otherwise idle during winter, are very well adapted for the handling and delivery of steamship freight by rail from winter ports.

The railway terminals of the commissioners which are being developed for ocean railway traffic concurrently with the increased facilities being constructed for shipping, have been considerably extended during the season of 1914.



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## VICTORIA PIER AND MARKET BASIN.

In the scheme of harbour extensions, commenced in 1910, every consideration was given not only to the enlargement of steamship accommodation but also to give additional and convenient accommodation to the important fleet of river and ferry steamers.

It was recognized that the river steamers, which do a tremendous passenger and market traffic, should have a location in the harbour convenient to the centre of the city and to the Bonsecours market.

The construction of this large pier in the very centre of the congested harbour district is one of the most serious matters occupying the attention of the engineering department. Every effort is made to advance the work without undue cost and also not to interrupt the immense traffic which is carried on during the seven months of the navigation season.

Up to the close of 1913, the outer part of the old low level Victoria pier was still used, although the new work of construction had almost surrounded it, connection being made to the old part of the wharf by a bridge. At the close of navigation last year the bridge was removed, and on opening of navigation, 1914, the work of the removal of the balance of the old Victoria pier by dredging was commenced.

The construction programme was continued during the season, and 300 feet of high-level wall was completed, and 1,200 feet completed to low level.

Unusual difficulty was encountered in constructing this work owing to the depth of water and variability of currents.

## PERMANENT TRANSIT SHEDS.

*Sheds Nos. 24 and 25.*—On the completion of the bulkhead wharf, below Victoria pier, from Beaudry street tunnel, eastwards, giving a bulkhead width of 250 feet, sheds Nos. 24 and 25 were designed.

These new sheds are of the Montreal Harbour standard steel frame and reinforced concrete slab type, with provision for the installation of a grain conveyor system on the river side of the shed.

Shed No. 24 at the head of the inclined ramp is suitable for vessels requiring partial shed accommodation, at the same time giving ample berth space for any size of ship.

The dimensions of these sheds are as follows:—

Shed No. 24, 264 feet by 105 feet.

Shed No. 25, 484 feet by 105 feet.

The clear head-room throughout is 14 feet.

The upper floor is designed to carry a superimposed or live load of 600 pounds per square foot.

Owing to the location of these sheds, the foundation was designed to withstand any unusual ice shove which might be possible in this locality.

The foundations of the sheds were practically completed in 1913, and the balance of the piers and the shed structures were completed during the season of 1914.

Railway tracks have been laid both in front and at the city side of the sheds, and fireproof offices for Customs, superintendents, clerical staff, etc., have been provided, and everything necessary installed to make these sheds the most complete in Montreal harbour.

Two thousand tons of structural steel were required in building these sheds, and almost as soon as the roof was on, the sheds were taken over by the Imperial Government, and have been used day and night since that day.



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## HIGH-LEVEL WHARVES, SECTIONS 24 TO 27.

Part of the old low-level quay wall, extending from the low-level Market basin at Berri street, eastward, was widened and strengthened and rebuilt on a 4 per cent grade, from elevation 107 up to elevation 119, standard high level. From the top of the grade the quay wall was continued eastward. The portion of this work, of which the concrete quay wall had been constructed to half level in 1913, was completed. A further extension of cribs was added during the season of 1914 and the concrete quay wall built up to half level. The refilling behind these walls was carried out to the full height and anchor blocks and tie rods completed.

## DRY DOCK SITE.

The dry dock site in the eastern division of the Montreal harbour required the construction of about 2,500 feet of standard crib and concrete quay wall having a total height of about 60 feet. The docking basin, 500 feet long by 1,000 feet wide, was dredged to a depth of 30 feet at the quay walls, and to 50 feet in the portion required for sinking the floating dock.

The channel approach required the dredging of an entrance of about 1,000 feet wide.

Thirty acres of filled land were formed for the shipyard, and about 6 acres in addition for the harbour right of way for harbour tracks and roadways.

The total amount of filling required for this work was 1,850,000 cubic yards, measured in situ.

The work was commenced in the summer of 1910, and was practically completed during the season of 1914.

The recent visit of the president and harbour officials to Europe included the inspection of many of the large shipyards of the British and continental ports. Many of the great shipyards were larger, but the plant, as laid out and constructed by Messrs. Canadian Vickers, Limited, and now nearly completed in full working order, was found to be, though not by any means the largest, the most up-to-date and convenient in many essential features, viz:—

1. Location with regard to the harbour, shelter, and easy approach by water.
2. Design and layout of shops, buildings, launching berths, fitting-out berths, and docks.
3. Railway communication for material.
4. No public streets or railways intersecting the yard.
5. Proximity to labour market of Montreal.
6. Availability of cheap electric power.

During the season no less than twenty-two vessels were docked and repaired at these works, which are owned and operated by "Canadian Vickers, Limited."

## INDUSTRIAL WHARF, POINTE-AUX-TREMBLES.

The plant of the Canada Cement Co., situated in the parish of Pointe-aux-Trembles, about three-quarters of a mile below Longue Pointe, has been enlarged until it is now the second largest if not the largest and most completely equipped cement plant in the world.

Its capacity is now 12,000 barrels per day. For transportation the plant is now connected by railway only, and all shipments by vessel have to be forwarded by railway lines. The coal consumed in the manufacture of cement is very considerable, and the company require at this plant an annual supply of 200,000 tons.

A wharf was finally designed to meet the requirements of the Canada Cement Company, and on the company guaranteeing sufficient revenue, the commissioners obtained the authority of the Government to construct a wharf for this industry.



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The company owns the land directly to the harbour boundary line, and they propose to carry all shipments to and from the water front by their own railway lines.

The order for this wharf was given in September, 1913, and although most of the dredging required for the channel approach and 400 feet of the concrete wall to one-half level had been finished in 1913, the great portion of the work remained to be done in 1914. Filling was required to the extent of about 250,000 cubic yards, measured in place. The cribwork and concrete quay wall has a length of 600 feet. Most of the grading and leveling has been completed, and railway tracks are laid down to the wharf and to the site of the unloading plant and steel towers which the company proposes to erect.

## DREDGING AND FILLING IN GENERAL.

The Harbour Commissioners' plant, consisting of four spoon dredges and one elevator dredge, together with a spoon dredge, formerly owned by the commissioners, was engaged on the usual work of dredging, consisting of maintenance of harbour berths, dredging to ameliorate the St. Mary's current, dredging for filling, and the usual dredging required for construction work and the crib seats for wharves.

The total amount of dredging done by the harbour dredges during the year amounted to nearly 1,500,000 cubic yards. Almost all the material excavated was of a hard character, ranging from compact gravel, clay and hard-pan to rock. None of the material in Montreal harbour is capable of being pumped, and the material when dredged and used for filling requires to be, to a great extent, handled by derricks and locomotive cranes.

One of the most important items of dredging, and which occupied the time of two of the commissioners' best dredges almost entirely throughout the season, was the construction of a channel 20 feet deep at low water, on the south-eastward side of St. Helen's island. The extreme slope of the river from the Victoria bridge down to the lower end of the Guard pier causes the St. Mary's current, which has been long recognized as one of the features in Montreal harbour requiring amelioration.

The design of the channel behind St. Helen's island has for a purpose a discharge of a portion of the river flow through the channel on a fixed slope giving uniform current. The work of 1913 and particularly of 1914 has shown considerable effect, estimated to amount to 15 per cent in ameliorating the St. Mary's current, even at extreme low water stage of 1914, when it would otherwise have been at its worst.

The two dredges working behind the island worked under conditions which would appear impossible. These dredges, however, worked continuously throughout the summer in rapids where the water was rushing over the bed of the river and falling into the dredged cut. Only plant of extraordinary stability, and dredging officers of great skill, could have undertaken this work, which would not have been attempted had not the results to be obtained warranted the effort.

The ground area dredged in 1914 amounted to about  $8\frac{1}{2}$  acres, all of which required the excavation of 20 feet of material consisting of cemented clay and sand with many embedded boulders. A length of 1,000 feet was dredged for a width of 335 feet, and before the work closed the dredging was in a fair way to approaching deeper water near the head of St. Helen's island.

Other important items of dredging consisted of dredging between St. Helen's island and the Guard pier, consisting almost entirely of large boulders. Four hundred and seventeen large boulders were removed, many requiring to be blasted before dredging.

A channel was commenced on the city side of the Guard pier up to the Bickerdike pier, where the material is shale rock. The cut made was 500 feet long, by 120 feet wide, all being dredged to a total depth of 30 feet at low water.



The widening of the main harbour was proceeded with inside the Guard pier, and an additional width was obtained opposite Jacques Cartier and King Edward piers.

The entrance channel of the Dry Dock basin was also widened and deepened, and several portions of the ship channel opposite Longueuil and St. Helen's island were also done by dredges belonging to the Department of Marine and Fisheries.

The drilling and blasting boat was occupied throughout the year, doing excellent work. The number of holes drilled and blasted was 2,769, the average depth of holes being over 8 feet, and the quantity of dynamite used was 16,074 pounds, of 75 per cent.

The sweeping of the channels and berths was carried out at intervals during the season, and as usual whenever any obstructions were found dredging was carried on as soon as navigation conditions permitted.

The depth of water in the ship channel was unusually low in 1914. The dry weather in the early part of the season and the fact that the level of the lakes was lower than usual, and the absence of east wind, accounted for this extreme condition.

The following table gives the average monthly depth of water in the ship channel in the harbour during the season of 1914, as compared with the records of 1913, and also the monthly averages of the depth of water on the old No. 1 Lachine Canal lock sill:—

Month.	Depth on old Lock Sill Lachine Canal.				Depth in Harbour Channel.			
	Average 1912-13.		Average 1914.		Average 1913.		Average 1914.	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
May.....	20	6	17	10	35	8	33	3
June.....	19	3	16	4	33	3	31	9
July.....	17	0	15	5	31	8	30	10
August.....	15	10	14	5	30	9½	29	10
September ..	15	3	14	0	30	4	29	5
October.....	15	3	13	5	30	6	28	10
November.....	15	3	13	4	30	5	28	9

As an instance, the depth of water in lake Ontario for October was 0.70 foot lower than in 1913, and 2.22 feet lower than the average for the last ten years.

MISCELLANEOUS.

The following important items of construction work and materials used will give an idea of the extent of the commissioners' operations during the season:—

- Cribwork built, 2,160 lin. ft.
- Cribwork sunk, 1,820 lin. ft.
- Quay walls completed, 2,518 lin. ft.
- Quay walls completed to half height, 1,159 lin. ft.
- Retaining and abutment walls completed, 1,228 lin. ft.
- New track work, 4 miles.
- Paving, 20,000 square yards.
- Dredging: By Harbour Commissioners' dredges, 1,500,000 cubic yards.
- By Marine and Fisheries' dredges, 500,000 cubic yards.
- Refilling by derricks, 1,750,000 cubic yards.
- Filling obtained from city contractors, 200,000 cubic yards.
- Quantities of materials used were:—
  - Cement, 60,000 barrels.
  - Sand, 15,000 cubic yards.
  - Crushed stone, 25,000 tons.



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Rubble stone, 20,000 tons.  
Displacers, 500 tons.  
Gravel, 8,000 tons.  
Stone for macadamizing, 2,500 tons.  
Timber used to amount of \$215,000.

The average number of men employed on maintenance, harbour yard, timber boom, construction work, machine shop, shipyard, dredging fleet, elevators, and all other work in connection with maintenance and operation, was 1,400.

CASUALTIES

The casualties in the harbour, in spite of the low-water season, were very few, and reflect great credit on the skill and care of the Montreal pilots.

Only one accident of importance is to be noted, viz.: the grounding of the ss. *Anglo-Brazilian* opposite Laurier pier, in August.

The Harbour Commissioners' floating concrete mixer was struck, during the night of October 6, by a steamship and sunk at the Victoria pier. This vessel was lifted by the Commissioners' plant within fifteen days, and is now being repaired.

Fires in the harbour of Montreal were fortunately very few and unimportant during the season of 1914.

SEASON OF NAVIGATION.

The 1913 season of navigation in the harbour closed on January 1, 1914, when a trip was made down the river in the Harbour Commissioners' tug, *Sir Hugh Allan*. Navigation opened in 1914, on April 20. The last steamship left for sea on December 4, and on December 15 navigation closed, and the commissioners' dredges went into winter quarters

ELECTRICAL BRANCH.

The following is information respecting the installation and operation of the electric power and lighting on the harbour.—

*Power.*—The amount of power that has been supplied through the sub-stations during the year 1914 is below:—

No. 1 Sub-Station. Feeding No. 1 Elevator and Conveyor Galleries—

	Watts.	H.P. Hrs.	Cost.
1914.. . . . .	1,317,400,000	1,765,947	\$11,779 22
		Fixed rate.. . . .	6,945 00
		Total.. . . .	\$18,724 22

No. 2 Sub-Station. Feeding No. 2 Elevator, Shed 16 and Victoria Pier—

	Watts.	H.P. Hrs.	Cost.
1914.. . . . .	1,000,600,000	1,341,284	\$11,109 41
		Fixed rates.. . . .	9 765 00
		Total.. . . .	\$20,874 41

No. 3 Sub-Station. Feeding Engine Shops and Harbour Yard—

	Watts.	H.P. Hrs.	Cost.
1914.. . . . .	30,000,000	40,211	\$ 354 94
		Fixed rates.. . . .	256 44
		Total.. . . .	\$ 611 38

No. 1 sub-station was remodelled during construction of the addition to No. 1 elevator, and was in service day and night throughout the season. The machinery and electrical equipment have proved reliable, and in every case have operated the elevator and addition without any delays



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A small sub-station was installed at sheds 24 and 25, to carry 300-400 horse-power, required for the compressing of hay for war supplies. This station was put into service at short notice, owing to the urgent demand for hay, and will continue in operation for the duration of the war.

FREIGHT HOISTS IN CONNECTION WITH TRANSIT SHEDS.

No. 1. SINGLE TEAM HOIST. SHEDS 11 AND 12.

Year.	Total teams carried.	Number days in operation.	Electric Power H.P. Hrs.	Commenced operation.	Shut down.
1911.....	11,997	205	43,162	April 20 ....	Dec. 9.
1912... ..	11,956	193	33,712	May 3 ... ..	" 14.
1913... ..	11,486	196	31,098	April 29 .....	" 15.
1914... ..	7,597	197	24,999	April 27.....	" 5.

No. 2. SINGLE TEAM HOIST. KING EDWARD PIER.

1911.....	4,795	84	27,497	Sept. 7.....	Dec. 12.
1912.....	12,935	198	55,430	May 3 ... ..	" 21.
1913 .. ..	11,274	192	45,575	April 28.....	" 10.
1914... ..	13,549	199	55,979	March 16....	" 3.

No. 3. DOUBLE TEAM HOIST. ALEXANDER PIER.

1914... ..	17,269	193	14,806	May 1 . ....	Dec. 12.
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No. 4. DOUBLE TEAM HOIST. JACQUES CARTIER PIER.

This hoist is similar to the one on Alexandra Pier and was installed during October and November, being tested on December 2, 1914.

No. 5. DOUBLE TEAM HOIST. SHEDS 24 AND 25.

This hoist is under construction, and will be ready for service for the season of 1915. It is of a similar capacity to No. 3 and No. 4 hoists and of the same construction.

HARBOUR LIGHTING.

During the navigation season, the Montreal Light, Heat & Power Co. operated, under contract, 176 series arc lamps.

The lighting of the Victoria Pier extension with forty lamps is being operated by the commissioners. Five new type lamp standards were erected in 1914. These standards are entirely of Harbour Commissioners' design and construction, and are of superior material, strength, and appearance. Provision has been made for the installation of the remaining lamps upon the completion of the high-level piers, the standards being completed and ready for erection.

At No. 1 elevator, six arc lamps were installed outside on brackets at various points, illuminating the railway tracks and wharf satisfactorily throughout the season.

In general, the electric equipment of the head office, dredging plant, transit sheds, and construction work, was maintained and improved during the season by the regular electrical staff.



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## MACHINE SHOP AND SHIPYARD.

The machine shop and shipyard, situated on the Mackay pier, are fitted up specially for the construction and maintenance of the dredging and construction plant.

The shop is an old wooden structure, but well adapted with excellent tools and machinery. There is also an excellent smith shop and boiler shop, both equipped for building and repairing.

The shipyard is very conveniently located for the hauling out as well as the construction and repairing of vessels.

Since 1910, the entire machinery of two dredges has been built, as well as the hull and machinery of two floating derricks, two tugs and eleven large flat scows.

## NEW CONSTRUCTION PLANT.

Three new flat scows of the standard type, dimensions 100 feet long, 30 feet beam, 9 feet depth, were commenced March 2, and were launched during May and June. These scows were numbered 51, 52, and 53.

A new derrick, hull dimensions 88 feet by 31 feet by 9 feet, was started May 23, and launched October 19, to be completed for the opening of navigation, 1915. The machinery of this derrick, under construction at the shop, will embody, in addition to the improvements made on derrick No. 7, the following:—

The steel boom will be of stronger construction and more rigid, the bottom connection of the steel A frame will be of pin type instead of rigid. A further improvement will be made in the turntable pivot casting to prevent rocking. An entirely new type of friction for the hoist and trip drum has been designed, and the foundations of the spud operating machinery will be stronger.

A new tug hull was laid down on the shipways, May 26, and launched November 21; dimensions, 77 feet by 18 feet by 10 feet, being nearly all of oak. The engines being constructed are of compound type, 13 inches and 26 inches by 22 inches, jet condensing. The boiler is of Scotch marine type, 10 feet diameter by 10 feet 1 inch long over all, having two furnaces 38 inches, I.D., and to carry a working pressure of 150 pounds.

The usual maintenance and repairs to the commissioners' fleet were well and economically carried out during the year.



DREDGING PLANT.

The following is a list of the Harbour Commissioners' dredging plant:—

Name of Vessel.	Length.	Breadth.	Depth.	When built.	Remarks.
	ft. in.	ft. in.	ft. in.		
Dredges—					
John Kennedy.....	90 0	36 0	10 3	1892	Wooden hull.
No. 4 . . . . .	90 0	36 0	10 9	1900	Steel hull.
No. 5.. . . .	104 0	36 0	10 9	1910	"
No. 6 . . . . .	104 0	39 0	10 9	1912	"
Premier.....	86 0	31 5	9 2	1905	Wooden hull.
Derricks—					
Clam shell No. 1.....	76 0	27 6	8 0	1899	"
No. 2 . . . . .	80 0	30 0	7 0	Sec'd	"
No. 3 . . . . .	76 0	27 6	8 0	1900	"
No. 4.....	75 0	26 10	7 6	1892	"
No. 5.....	75 0	26 10	7 6	1892	"
No. 6 . . . . .	75 0	26 10	7 6	1892	"
No. 7 . . . . .	88 0	31 0	9 0	1913	"
Drilling and Blasting—					
Boat No. 1.....	80 0	27 0	5 6	1895	3·5-in. steam drills.
Boat No. 2 . . . . .	60 0	20 0	5 0	1909	2·5-in. "
Tugs—					
St. Peter.....	74 8	16 1	8 6	1875	Wooden hull. Rebuilt '03.
Courier . . . . .	36 9	9 3	6 2	1900	Composite hull.
Aberdeen . . . . .	79 3	18 3	9 0	1895	Steel hull.
Robert Mackay... . .	81 9	17 6	10 0	1899	"
Alph. Racine . . . . .	90 0	18 6	12 1	1905	"
No. 1.....	90 0	26 0	6 0	1893	Iron, formerly Fl. Elevator No. 1.
Sir Hugh Allan... . .	130 0	26 0	15 0	1911	Steel hull, twin scr.
John Young . . . . .	91 8	22 0	9 0	1911	" "
Beaver. . . . .	64 3	15 3	7 3	1892	Wooden hull.
Passe-Partout . . . . .	49 1	11 3	5 7	1912	"
Testing boat . . . . .	73 3	14 0	3 1	1897	2 wooden scows, braced 16 feet apart.

- 3 flat scows, 67½ yards capacity.
- 18 " 150 "
- 1 " 300 "
- dump scows, 200 "
- 1 " 100 "
- 1 coal scow, 400 tons capacity.
- 1 floating air plant.
- 1 floating pile driver.

HARBOUR COMMISSIONERS' YARD.

During the year the staff employed in the shops and stores, averaging thirty men, was constantly engaged in handling the tools and equipment, and in keeping all the shore plant in repair.

WHARF REPAIRS AND MAINTENANCE.

The maintenance of the harbour, wharves, railways, roadways, buildings, and equipment is now becoming a very important item. Repairs are required everywhere, and the cleaning of the wharves and roadways is a work of considerable extent. The maintenance organization constantly employs a staff of repairers, pavers, ironwork men, painters, sweepers, and carpenters.

During the season, the wharves were kept in excellent condition, and the watering of the extensive areas of roadways gave general satisfaction.



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LIFE-SAVING EQUIPMENT.

Every effort is made to maintain a complete life-saving equipment all along the wharves, consisting of life-buoys, ropes, and long gaffs, and railings have been constructed at important corners of the wharves, and lights have been maintained at places which have proved liable to accident.

SHED REPAIRS AND MAINTENANCE.

The maintenance and repairs to the Harbour Commissioners' extensive system of elevators and transit sheds were carried out during the season. Shed No. 2 and the conveyor gallery on shed No. 3 were painted, as well as the interior steelwork of both floors of sheds 3, 5 and 11.

FLOATING CRANE.

The Harbour Commissioners' floating crane was operated throughout the season as follows:—

Number of days working.. . . . .	131
Number of hours working.. . . . .	1,020½
Percentage of time in actual operation .. . . . .	77%
Total number of lifts—	
Commercial.. . . . .	373
Commissioners' service .. . . . .	104
Average weight of lifts—	
	Tons.
Commercial .. . . . .	8 134-2,240
Commissioners' service.. . . . .	18 29-2,240
Greatest lift—	
Commercial.. . . . .	60
Commissioners' service.. . . . .	70
Greatest tonnage from single ship—	
Ex-ss. Pretorian.. . . . .	303 472-2,240
Total weight lifted during season.. . . . .	5,020 1,477-2,240
Total weight lifted during 1913.. . . . .	6,771 1,098-2,240

SAW-MILL AND TIMBER BOOM.

The saw-mill was in operation 273 days.  
The quantity sawn during the season was 4,401,748 feet of hard and soft wood at an average cost of \$2.95 per M feet b.m.  
The number of men operating the saw-mill and planing-mill was sixteen  
The timber used during the year was as follows:—

- 593,072 lineal feet.
- 1,952,119 feet, b.m.
- 7,875 railway ties.
- 267 cords of slabs.
- 6 loads of slabs, hardwood.
- 7 boat sides.

AYLWIN STREET SUBWAY.

A new subway, the construction of which was urged by the city authorities, was built at Alywin street, under the existing railway yards of the Harbour Commissioners, and the yard was relaid to suit the new conditions.



The subway has a minimum head-room clearance of 13 feet, with a teamway 30 feet wide and a 5-foot footpath, the whole spanned with a seven-track plate girder and steel trough floor system bridge, the tracks being laid 13 feet centres, and the steelwork designed in accordance with the Canadian Government specification for railway bridges and viaducts, type heavy.

The concrete abutment walls and the paving of the subway were done by the Harbour Commissioners' departmental organization, while the steel superstructure, of a total weight of 234 tons, was let by contract and erected by the Dominion Bridge Co., Ltd.

FOOT-BRIDGE, ELEVATOR NO. 2.

A 50-foot span foot-bridge was erected between the wharf at grain elevator No. 2 and the marine tower jetty for the use of the elevator staff and the crews of the ships which are moored at the marine tower jetty.

PROPOSED WAREHOUSE AT MARKET BASIN.

Preliminary studies were made of a warehouse which is proposed to be erected on the high level at Beaudry street, the construction of which is under consideration by the commissioners.

The building is designed to be about 400 feet long and 100 feet wide, to have six storage floors, of which five can be used the year round, and one, 4 feet above the low-level wharf, will be available only the summer months when the river level is normal.

All floors will be designed to carry a live load of 300 pounds per square foot of floor, and the six floors will be connected with four high-speed electric cargo elevators.

Warehouses, in connection with the docks, is a feature of European ports. During the past years, American ports have adopted this system as an adjunct to their handling of import and export trade, with success. Many western houses have stated that they would carry larger stocks in Canada if there existed a warehouse on the wharf, economically situated for receipt, storage, and re-shipment. The Harbour Commissioners have been obliged to limit the time goods may remain in the transit sheds, and a convenient warehouse is therefore most necessary, and would figure out well as a convenience to the public and as a paying concern.

The warehouse is designed to be entirely fireproof, and provision will be made so that a portion of the building can be converted into a cold storage house if needed.

GENERAL.

*Labour.*—The following table shows the maximum and average number of workmen employed directly by the Harbour Commissioners during the season 1914:—

	Maximum.	Average.
Maintenance, cleaning, removing ice, etc. . . . .	134	87
Harbour yard, carpenters, blacksmith, etc.. . . . .	32	30
Sawmill and timber boom, sawyers and handymen.. . . .	34	30
Construction of wharves, elevators, etc.. . . . .	816	517
Machine shop, machinists, blacksmiths.. . . .	162	97
Shipyard, carpenters, labourers, etc.. . . . .	111	104
Dredging fleet, crews dredges, tugs, etc.. . . . .	300	300
Operation: Elevator No. 1.. . . .	35	35
Elevator No. 2.. . . .	49	49
Conveyors.. . . .	40	40
Floating elevators.. . . .	19	19
Traffic department.. . . .	70	70
	1,802	1,378



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Wharf Accommodation.—The extent of the wharves at the end of the season is as follows:—

	Lin. ft.	Miles.
For 30-ft. draught at O.L.W., and over.. . . . .	22,855	4.328
For 25 to 27½ feet.. . . . .	13,192	2.498
Total deep draught.. . . . .	36,047	6.826
For 20 ft. draught and under.. . . . .	3,005	0.569
Total wharfage end of 1914 .. . . . .	39,052	7.395

Extent of Harbour Railway Tracks.—The extent of the Harbour Commissioners' railway tracks at the end of 1914 is as follows:—

	Lin. ft.	Miles.
1. South of Lachine canal, Bickerdike pier, Windmill Point wharf and west.. . . . .	26,189	4.960
Montreal and Southern Counties Railway.. . . . .	425	0.080
Total south of canal.. . . . .	26,614	5.040
2. Sections 12 to 46, high-level, main line track.. . . . .	50,165	9.500
To piers, elevators, cross-overs and sidings, etc.. . . . .	73,469	13.915
Sections 35 to 46, low-level, main line track.. . . . .	12,150	2.303
Sections 46 to 62, high-level, main line tracks.. . . . .	13,355	2.529
3. To wharves, industries, etc.. . . . .	22,143	4.193
4. To Guard pier.. . . . .	10,400	1.969
5. South shore, St. Lambert.. . . . .	2,300	0.4356
Grand total tracks on harbour in use in 1914.. . . . .	210,596	39.884

DEPARTMENTAL STAFFS.

In terminating this report, the Commissioners desire to express their appreciation of the loyal services rendered by the staffs of the different departments during the past year.

W. G. ROSS, *President.*  
FARQUHAR ROBERTSON,  
A. E. LABELLE,  
*Harbour Commissioners.*

COMBINED STATEMENT showing the Number and Tonnage of all Vessels that arrived in Port during the past Ten Years.

Year.	Transatlantic.		Maritime Provinces.		Inland.		Grand Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
1905....	442	1,354,829	391	585,227	11,113	2,788,551	11,945	4,725,607
1906....	439	1,380,835	381	592,388	12,557	3,095,174	13,377	5,068,395
1907....	381	1,339,014	361	586,972	14,420	3,620,950	15,161	5,546,936
1908 ..	364	1,315,688	375	642,916	12,434	3,589,124	13,173	5,548,028
1909....	371	1,436,963	299	474,450	10,991	3,146,494	11,661	5,057,907
1910....	411	1,658,414	336	574,808	13,636	4,327,799	14,383	6,561,021
1911....	401	1,695,613	361	642,639	11,670	4,275,019	12,432	6,613,271
1912....	409	1,775,487	327	628,437	12,586	4,649,767	13,322	7,053,691
1913. .	477	2,020,333	343	670,202	13,426	5,703,467	14,246	8,394,002
1914....	551	2,039,133	365	716,385	12,225	6,288,939	13,141	9,044,457



STATEMENT showing the Classification of Transatlantic Vessels that arrived in Port during the past Ten Years.

Year.	Steamships.		Barques.		Ships and Brigs.		Schooners.		Grand Total.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	Vessels	Tonnage.
1905..	422	1,357,517	3	2,324	.....	.....	17	14,988	442	1,134,829
1906..	420	1,372,879	3	1,872	.....	.....	16	6,084	439	1,380,833
1907..	381	1,339,014	.....	.....	.....	.....	.....	.....	381	1,339,914
1908..	364	1,315,688	.....	.....	.....	.....	.....	.....	364	1,315,688
1909..	371	1,436,963	.....	.....	.....	.....	.....	.....	371	1,436,963
1910..	410	1,656,794	.....	.....	1	1,620	.....	.....	411	1,638,414
1911..	401	1,695,613	.....	.....	.....	.....	.....	.....	401	1,695,613
1912..	409	1,775,487	.....	.....	.....	.....	.....	.....	409	1,775,487
1913..	477	2,020,333	.....	.....	.....	.....	.....	.....	477	2,020,333
1914..	551	2,039,133	.....	.....	.....	.....	.....	.....	551	2,039,133

STATEMENT showing the Classification of Vessels that arrived in Port, for the last Ten Years, from the Lower St. Lawrence and Maritime Provinces.

Year.	Steamships.		Schooners.		Grand Total.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
1905.....	364	580,485	26	4,116	391	585,127
1906.....	367	588,980	14	3,408	381	592,388
1907.....	343	579,930	18	7,042	361	586,972
1908.....	350	640,244	25	2,672	375	642,916
1909.....	273	470,936	26	3,514	299	474,450
1910.....	306	572,022	30	2,786	336	574,808
1911.....	330	639,752	31	2,887	361	642,639
1912.....	292	625,099	35	3,338	327	628,457
1913.....	299	666,053	44	4,149	343	670,202
1914.....	321	712,327	44	4,058	365	716,385

STATEMENT showing the Nationalities and Tonnage of Sea-going Vessels that arrived in Port during the season of 1914, that were navigated by 62,714 seamen.

Nationality.	Number of Vessels.	Tonnage.
British.....	769	2,364,508
Norwegian.....	113	289,441
German.....	11	38,783
Belgian.....	3	18,993
French.....	4	15,071
Austrian.....	4	10,950
Danish.....	7	9,992
Greek.....	1	3,049
Dutch.....	1	1,937
Swedish.....	1	1,518
American.....	2	1,276
Total ..	916	2,755,518

Of the above, 872 were of iron or steel with tonnage of 2,751,460 tons, and forty-four were built of wood with a tonnage of 4,058 tons.



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STATEMENT showing the dates of the Opening and Closing of Navigation, the First Arrival and the Last Departure for sea; also the Greatest Number of Vessels in Port at one time, during the past Ten Years.

Years.	Opening of Navigation.	Closing of Navigation.	First Arrival from Sea.	Last Departure for Sea.	Greatest Number of Vessels in Port at one time.			
					Sea-going		Inland.	
					No.	Date.	No.	Date.
1905.....	April 19....	Dec. 12....	May 2....	Nov. 30 ..	27	Oct. 4...	175	June 19
1906.. .....	" 20....	" 2....	April 28....	Dec. 2....	26	May 28....	124	July 8
1907.....	" 23....	" 15....	May 2 ...	Nov. 29...	29	" 24....	103	" 8
1908.....	" 22 ..	" 10....	April 30....	" 26....	24	June 21....	104	June 30
1909.....	" 16....	" 27....	" 23....	" 28 ...	22	Nov. 9....	107	Aug. 31
1910.....	" 1....	" 7....	" 11....	Dec. 1....	25	May 18....	122	Sept. 18
1911.....	" 23....	" 29 ...	" 26...	" 3....	24	Aug. 18....	85	June 5
1912.....	" 23....	" 21. ...	" 30....	" 3....	22	July 31....	86	Aug. 21
1913.....	" 9....	" 27 ...	" 19....	Nov. 29....	29	Oct. 3....	92	July 25
1914.....	" 22....	" 15....	" 29....	Dec. 4....	56	Aug. 21....	94	Aug. 17

HARBOUR DREDGING, 1914.

Places where Dredges worked.	Vessels.	Time of Service.		Quantity Dredged.		
		Days.	Total.	Cu. Yds.	Total Yds.	
Altering Guard pier....	Dredge J. Kennedy...	1	1			
Inside Guard pier ....	Dredge No. 5 .....	33		38,050		
	Dredge No. 6.....	180 <sup>3</sup> / <sub>4</sub>		173,270		
	Dredge Algonquin ....	113	326 <sup>3</sup> / <sub>4</sub>	92,400	303,720	
Channel south of St. Helen island	Dredge J. Kennedy...	324 <sup>1</sup> / <sub>2</sub>		144,100		
	Dredge No. 4.. .....	348 <sup>3</sup> / <sub>4</sub>		267,750		
	Dredge No. 5.....	10	683 <sup>1</sup> / <sub>4</sub>	12,600	424,450	
Removal Victoria pier.....	Dredge No. 5.....	66		115,150		
	Dredge No. 6.....	39	105	64,350	179,500	
Pointe-aux-Trembles .....	Dredge No. 5. ....	246 <sup>1</sup> / <sub>4</sub>	246 <sup>1</sup> / <sub>4</sub>	427,950	427,950	
Dredging for crib seats—						
Market basin.....	Dredge No. 6 .....	16		12,150		
Victoria pier.....	Dredge No. 6.....	38 <sup>1</sup> / <sub>2</sub>		39,370		
Section 26 .....	Dredge No. 6.....	20	74 <sup>1</sup> / <sub>2</sub>	6,400	57,900	
General dredging to obtain filling and to clean shoal.....	Dredge Premier... ..	166	166	12,180	12,180	
Maintenance.....	Dredge No. 4 .....	5		2,700		
	Dredge No. 6 ... ..	28		18,917		
	Dredge Algonquin ....	2	35	600	22,217	
Miscellaneous construction work and wrecking.....	Dredge No. 4.....	8 <sup>1</sup> / <sub>2</sub>				
	Dredge No. 5.....	12 <sup>3</sup> / <sub>4</sub>				
	Dredge No. 6.....	26 <sup>1</sup> / <sub>4</sub>	47 <sup>1</sup> / <sub>2</sub>			
Grand total.....			1,685 <sup>1</sup> / <sub>4</sub>		1,427,917	



HARBOUR DREDGING, 1914.

Name of Dredge.	Places at which dredging was done.	Time of Service.		Quantities Dredged.		Character of Material Dredged.
		Days.	Total.	Cu. yards.	Total yds.	
Dredge John Kennedy.	Altering Guard pier . . . . .	1	.....	.....	.....	Compacted disintegrated shale and hard-pan and boulders.
	Channel south St. Helen's island . . . . .	324½	325½	144,100	144,100	
Dredge No. 4.	Alongside Windmill Point wharf and Alexandra pier (maintenance) . . . . .	5	.....	2,700	.....	Hard-pan and boulder.
	Channel south St. Helen's island . . . . .	348¾	.....	267,750	.....	
	Miscellaneous construction and wrecking work . . . . .	8½	362¼	.....	270,450	Timber, stone, and earth filling.
Dredge No. 5.	Removal of Victoria pier . . . . .	66	.....	115,150	.....	
	Pointe-aux-Trembles . . . . .	246¼	.....	427,950	.....	Rock and clay.
	Inside Guard pier . . . . .	33	.....	38,050	.....	
	South channel . . . . .	10	.....	12,600	.....	Blasted rock and hard-pan.
	Miscellaneous construction and wrecking work . . . . .	12¾	368	.....	593,750	
Dredge No. 6.	Removal of Victoria pier . . . . .	39	.....	64,350	.....	Timber, stone, and earth filling.
	Market Basin cribseats . . . . .	16	.....	12,150	.....	
	Victoria Pier cribseats . . . . .	38½	.....	39,350	.....	Gravel and stones.
	Maintenance in basins . . . . .	14	.....	18,917	.....	
	Inside Guard pier . . . . .	180¾	.....	173,270	.....	Rubbish.
	Cribseats Sec. 27-28 . . . . .	20	.....	6,400	.....	
	Elgin Basin maintenance . . . . .	14	.....	.....	.....	Blasted rock, earth and gravel.
	Miscellaneous construction and wrecking work . . . . .	26¼	348½	.....	314,437	
Dredge Pre-mier.	Between Isle Verte and Guard pier . . . . .	166	166	12,180	12,180	Hard-pan and stones.
Dredge Algonquin.	Maintainance of basins . . . . .	2	.....	600	.....	Sewage material.
	Inside Guard pier . . . . .	113	115	92,400	93,000	
	Grand total . . . . .	.....	1,685¼	.....	1,427,917	Unblasted rock and hard-pan.



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REPORT OF THE HARBOUR COMMISSIONERS OF QUEBEC.

QUEBEC, April 17, 1915.

To the Honourable J. D. HAZEN, M.P., P.C.,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—In compliance with the requirements of the Act 62-63 Victoria, chapter 34, section 46 (The Quebec Harbour Commissioners' Act, 1899), I have the honour to submit the following report on the operations of the Quebec Harbour Commissioners for the year 1914.

CHIEF ENGINEER'S REPORT.

The annexed report from the chief engineer and general superintendent, Mr. St. George Boswell, conveys information regarding all matters coming under his care in connection with the harbour works in general, and the various additions, alterations, and reparations made to them, and the minor works executed during the year on the properties of the commissioners. It also gives details of the works of improvement executed during the year on approved estimates from your department.

WHARFINGER'S REPORT.

The annexed report from the wharfinger, Mr. P. Flynn, gives the usual information regarding the number of vessels using the Louise docks, the goods landed or shipped on the wharves, and the railway traffic over the Commissioners' property during the year 1914.

HARBOUR MASTER'S REPORT.

The annexed report from the harbour master, Captain James A. Murray, contains the usual data concerning the opening and closing of navigation, the formation of ice, and the routine work of his department.

OFFICE BUILDING.

The offices of the Quebec Harbour Commissioners have been located, since April, 1887, in the Examining Warehouse, where they have had suitable accommodation until recently. The first meeting held in those offices took place on April 19, 1887.

In 1913, when the commissioners entered into an active constructive period, they had to increase their staff. Owing to inadequate office room, the staff had to be divided, part of the engineering department being located in the custom-house, and the construction, purchasing and traffic departments had to be temporarily accommodated in an old building.

A convenient and modern building was completed during the year on the Point-à-Carcy wharf, the foundation of the Great Northern elevator which had been destroyed by fire in October, 1910, being used for the purpose of this erection.

The first meeting of the commissioners held in their new office building took place on August 1, 1914. All the different departments were then in possession of their respective quarters.

The building is of cut-stone and constructed of fire-proof materials throughout, with the exception of the doors and windows, with an electric tower clock on the frontispiece. On the ground floor are located the general office, the construction, traffic, purchasing, and accounting department; on the second floor, the board room,



the commissioners' private offices, the office of the secretary-treasurer and his clerical staff, and the harbour master's office; on the third floor is the engineering department and draughtsmen's room. An electric passenger elevator is located in the centre of the building.

REVENUE AND EXPENDITURE.

During the year 1914, the revenue of the commissioners amounted to \$287,194.39, or an increase over the preceding year of \$54,859.66, and the expenditure chargeable to revenue was \$267,835.54, leaving a surplus over the working expenditure for the year of \$19,358.85.

Included in this revenue is a charge of \$50,000 made against the Department of Public Works for the ground used by the immigration buildings on the Embankment, and the other facilities given to the Immigration Department.

HARBOUR FACILITIES.

The facilities offered in the harbour of Quebec for the accommodation of large vessels have been demonstrated in a decisive manner when the embarkation of the first Canadian overseas contingent took place in the latter part of September. Thirty-one steamships, ranging in tonnage from 4,686 tons to 18,564 tons have been accommodated at the Commissioners' deep-water docks and wharves for taking on board the men, horses, ammunitions and supplies of the first contingent. Several of these vessels were bunkered here, and were supplied with fresh water from the commissioners' waterworks, which are connected with the city waterworks.

The transports engaged in taking over the first Canadian contingent were:—

Name of Steamship.	Tonnage.	Line.
Saxonia.....	14,297	Cunard Line.
Ivernia.....	14,210	"
Lapland.....	18,564	Red Star Line.
Laurentic.....	14,892	White Star Line.
Sicilian.....	6,229	Allan Line.
Montezuma.....	8,360	C.P.R. SS. Lines.
Bermudian.....	5,530	Canada SS. Lines.
Lokonia.....	4,686	Donaldson Lines.
Cassandra.....	8,135	"
Tyrolia.....	7,535	C.P.R. SS. Lines.
Tunisian.....	10,576	Allan Line.
Montreal.....	8,644	C.P.R. SS. Lines.
Megantic.....	14,878	White Star Line.
Royal George.....	11,146	C.N.R. SS. Line.
Alaunia.....	14,575	Cunard Line.
Athenia.....	8,668	Donaldson Line.
Manitou.....	6,848	Atlantic Transport Co.
Grampian.....	10,074	Allan Line.
Virginian.....	10,574	" (Chartered to C.P.R. SS. Lines.)
Andania.....	12,620	Cunard Line.
Monmouth.....	7,535	C.P.R. SS. Lines.
Zeeland.....	11,905	Red Star Line.
Corinthian.....	6,270	Allan Line.
Scandinavian.....	11,349	"
Ruthenia.....	7,394	C.P.R. SS. Lines.
Franconia.....	18,148	Cunard Line.
Royal Edward.....	11,117	G.N.R. SS. Lines.
Scotian.....	10,322	Allan Line.
Caribbean.....	5,823	R. M. Steam Packet Co.
Arcadian.....	8,939	"
Manhattan.....	8,004	National Steamship Co., Ltd.
Total tonnage.....	317,847	



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BY-LAWS REVISED.

The revised by-laws of the Quebec Harbour Commissioners have been submitted to His Excellency the Governor General in Council for approval, when they were sanctioned by an Order in Council on the 9th March, 1914, and published in *The Canada Gazette*, according to law, on the 28th of March, 1914.

The changes effected in the by-laws were only those required to place them in a more modern form, and to add to them those required for the operation of grain elevators, switching engines, floating crane, and wharf cranes.

EXPENDITURE ON CAPITAL ACCOUNT.

The expenditure on capital account during the year on approved estimates, and payable out of advances made to the commissioners under the "Quebec Harbour Advances Act, 1913" (3-4 George V, chapter 41), and the "Quebec Harbour Advances Act, 1914" (4-5 George V, chapter 47), has been \$1,994,960.03, the details of which will be found in a tabulated statement attached to this report.

The general expenditure on capital account, out of the available moneys at the disposal of the commissioners, has been \$17,341. A detailed statement of this expenditure is also attached to the report.

The total expenditure on capital account has, therefore, been of \$2,012,301.03.

FREIGHT TERMINALS.

The accommodations completed last year for providing freight terminals for the Intercolonial railway and the Grand Trunk railway systems, have proved to be an advantageous undertaking for all concerned, and the increase of this traffic, both inward and outward, is substantial testimony that the facilities provided have developed considerable new business.

To show the importance of this new service, I might mention that 4,473 cars were handled during the year, being a substantial increase over the three months' operation during the preceding year.

CARS HANDLED.

The increase in the railway traffic over the commissioners' properties has necessitated the purchase of an additional switching locomotive.

During the year, 53,907 cars have been handled by the commissioners, namely:—

	Cars.
Loaded cars received.. . . . .	15,257
Loaded cars forwarded.. . . . .	18,678
Empty cars received.. . . . .	11,297
Empty cars forwarded.. . . . .	8,675
Total.. . . . .	53,907

Out of this number of cars, the car ferry has handled 18,485. The immigration and ocean passenger traffic has necessitated the use of 5,560 passenger and baggage cars.

ICE CUTTING.

During the winter of 1913-14, 99,950 blocks of ice have been cut for local use.

Care has been taken that all this ice cut for domestic purposes is perfectly pure, and taken in localities in the harbour that have been selected after an analysis of the ice had been made.

To this report are annexed the various statements conveying the information yearly forwarded to your department in connection with the harbour, and also a complete statement of the commissioners' accounts for the year.

I have the honour to be, sir,

Your most obedient servant,

ST. GEORGE BOSWELL,

*Acting Secretary-Treasurer.*



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HARBOUR COMMISSIONERS OF QUEBEC,  
ENGINEER'S OFFICE,

QUEBEC, January 2, 1915.

RAOUL RENAULT, Esq.,

Secretary-Treasurer, Harbour Commission.

SIR,—I have the honour to submit the following with reference to the various works in connection with the maintenance and improvement of the harbour accommodation carried out by this department during the past year.

## PRINCESS LOUISE EMBANKMENT.

*Bulkhead Wall.*—The construction of this wall was carried on vigorously until the first week of August last, when 800 feet of substructure and 700 feet of superstructure (up to within 4 feet of coping level) had been completed; and also three of the substructure cribwork blocks to an average of one-half of their full height; after the above date no further work was done on the substructure, but an additional 500 feet of superstructure was constructed. Some 405,000 cubic yards of filling, taken from the dredged materials, were deposited behind this wall during the past season.

The dredge in connection with the construction of the bulkhead wall was continued during the whole season by the two dredges belonging to the commission, supplemented, during the early part of the summer, by a dredge working for the commission under contract with the Dominion Dredging Company. The total quantity of materials removed during the season amounted to 1,238,021 cubic yards.

For procuring the stone required in connection with the construction of the bulkhead wall and the fly bank retaining wall, a stone quarry was purchased at Victoria cove; this quarry is very advantageously situated on the shore of the St. Lawrence, and has good berthing facilities for the scows used in the conveyance of the stone to site of works; 50,355 cubic yards of stone were taken from this quarry during the season.

The old quarry at St. Nicholas was not operated the past season, as all the readily available stone had been removed.

*Grain Elevator.*—The 1,000,000-bushel fireproof reinforced concrete grain elevator, referred to as being under construction in last year's annual report, was completed early in the summer, and was put into operation for the first time on June 9, when a barge containing oats was discharged at the marine tower. Since the elevator has been taken over by the commission, eight Kinnear steel folding doors, each 14 feet 6 inches by 22 feet, for closing the entrances to the railway track sheds have been installed.

A pneumatic grain discharging and loading apparatus has been placed on the wet dock quay, front of the cross-wall by Messrs. James Richardson & Sons, to be used in connection with the old grain elevator leased by them from the commission; this apparatus, however, has not as yet been put into active service.

The commissioners' water service has been extended down the western face of pier No. 1, to enable the vessels at this berth to obtain city water without having to make use of an excessive length of hose, and to provide additional fire protection.

The storage shed No. 22 has been removed some 20 feet to the north, in order to clear the space required for the railway lines serving the new grain elevator.

The main line on the embankment has been relaid with 80-pound rails, and is now in first-class condition.

The building on the cross-wall, formerly occupied as the construction office, has been converted into a garage.



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The commissioners' new office building was completed and occupied by the commission on August 1 last; a new brick-paved roadway has been laid down to this building from Dalhousie street.

*Indian Cove.*—The construction of the cribwork blocks for the substructure of the bulkhead wall was continued the past year until the first week in August, when the work was discontinued for the balance of the season.

On June 22, a fire destroyed the old building situated on one of the blocks at Indian Cove, and known as the "salt store," but did no further damage.

*Fly Bank.*—The construction of the retaining dock wall, some 1,400 feet in length at this locality, referred to in the last annual report, has been proceeded with and is now completed; a large portion of the materials removed by the commissioners' dredges this season has been deposited behind this wall.

Borings have been taken during the past season over the fly bank, from the southern end of this retaining wall, for a distance of 2,000 feet, covering the ground lying between low-water mark and 40 feet below high water.

*Plant.*—Following is the list of the plant delivered to the commission during the past summer:—

Dump scows: Six steel dump scows, three of 500 cubic yards capacity, and three of 300 cubic yards capacity, constructed by the Polsons Iron Works and delivered on the opening of navigation.

Ten deck scows constructed departmentally during the winter of 1913-14, delivered on opening of navigation.

Six of these scows were built at Indian Cove.

Two at Lampson's Cove.

Two on Louise Embankment.

Tug *Aviso* purchased and delivered in the early summer.

Bucket ladder dredge arrived on June 12, and began work on July 13.

Service boat *Laval* arrived on August 8, and was put into commission on August 29.

This vessel is fitted with a salvage plant and powerful fire pump with a capacity of 2,000 gallons of water per minute.

One locomotive similar to the three purchased last year.

Two locomotive cranes for filling purposes, one furnished by the Brown Hoisting Machinery Company, and the other by the Industrial Works Company.

One 50-ton floating crane, constructed by the firm of Sir Wm. Arrol & Company, arrived in the Louise docks on the 26th of August, and was put into service for the first time on September 22, when it was used for handling guns and other heavy materials, shipped with the first Canadian contingent.

Floating grain transfer boat: This vessel arrived on the 23rd of October, but will not be ready for delivery to the commission before the opening of navigation next spring.

The commissioners' motor-boat, destroyed by fire last autumn, was rebuilt during the winter of 1913-14, and was put into service early in the summer.

The various properties of the commission have been kept in a good state of repair during the past season, with the exception of the river front of the old Point-à-Carcy wharf, at present used as a landing berth by the Quebec and Levis Ferry Company's car ferries; this frontage requires extensive repairs which cannot be undertaken until the Ferry Company remove to their new landing berth.

The cross-wall drawbridge was operated for the first time the past season on April 16, and for the last time on December 7.



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The water was retained in the wet dock for the first time for the season on April 29, and for the last time on November 30.

I am, sir, your obedient servant,

ST. GEORGE BOSWELL, *Chief Engineer.*

QUEBEC, January 12, 1915.

RAOUL RENAULT, Esq.,

Secretary-Treasurer.

SIR,—I have the honour to submit the following with reference to the traffic of the St. Charles docks and wharves, showing the number of vessels, their registered tonnage, amount and description of cargo landed and shipped from the docks during season 1914.

Inward, 387 vessels, 1,569,426 tons register: 54,252 tons general cargo, 7,031 tons salt, 1,549 tons drain pipe and earthenware, 2,599 tons cement, 819 tons whiting, 4,266 tons brick, 1,638 tons slag, 412 tons glass, 324,992 tons bituminous coal, 39,993 tons anthracite coal, 161 tons coke.

Outwards, 131 vessels, 692,649 tons register: 18,801 tons general cargo, 1,506 tons asbestos, 1,000 tons whiting, 13,320 tons P.S. lumber, 8,514 loads timber.

Lower port steamers: landed 2,095 tons general, shipped 3,492 tons general.

Grain landed at No. 2 elevator: oats, 531,815 bushels; wheat, 43,233 bushels; corn, 179,080 bushels; barley, 12,000 bushels; total, 766,128 bushels.

During past season the different mail steamers landed: first-class passengers, 7,819; second-class passengers, 35,407; third-class passengers, 55,608; total, 98,834.

The second and third-class passengers were forwarded to their future homes by the different railway companies.

#### VESSELS DAMAGED AND USING THE DOCKS.

SS. *Storstad*, having collided with the ss. *Empress of Ireland*, off Métis, came up to the Louise docks, discharged her cargo of coal, and went over to Lévis to get repaired.

SS. *Clendine*, having grounded below Father Point, came up to the Louise docks, landed her cargo of coal, and then went up to Montreal.

SS. *Monkshaven*, having grounded at Matane, came up to the Louise docks, landed her cargo of coal, and went over to Lévis for repairs.

SS. *Floristan*, having grounded at Newfoundland, came to the Louise docks, landed her grain into No. 1 elevator, and went over to Lévis to get a temporary repair; after being repaired, came back and reshipped her cargo of grain and went to sea.

SS. *Lingan*, having collided with the Government steamer ss. *Montmagny*, at Crane island, came up to the Louise docks, landed her cargo of coal, and went over to Lévis to get repaired.

The Dominion Coal Company have 10,000 tons coal stored on the space rented to them.

The Nova Scotia Steel and Coal Company have 20,700 tons coal stored on the space rented to them.

There are wintering on Louise docks: lumber, coal, etc.

There are stored in the different freight sheds: salt, cement, asbestos, etc.

The docks are occupied during the winter months by a large number of vessels of various tonnages, where they find safe quarters until the opening of navigation.

I have the honour to be, sir,

Your most obedient servant,

P. FLYNN, *Wharfinger.*



SESSIONAL PAPER No. 21

OFFICE OF THE HARBOUR MASTER,

QUEBEC, December 12, 1914.

RAOUL RENAULT, Esq.,

Secretary-Treasurer.

SIR,—I have the honour to submit the following report for the year 1914:—

The opening of the season commenced by the ss. *Savoy* leaving Quebec for Anticosti on April 2, and the ss. *Cascapedia* and *Aranmore* for gulf ports on the 6th and 10th, respectively.

April 17, government steamer *Druid* left port to place buoys in position down river.

The first Atlantic mail and passenger steamers arrived April 28, as follows: SS. *Corsican*, *Saturnia*, and *Ionian*.

The ss. *Englishman* and *Ruthenia* arrived on April 29, and the R.M.S. *Teutonic* the following day.

May 5, the new berth on the river St. Charles side of the breakwater was occupied for the first time by the liner *Carrigan Head*, and has since been used, as occasion necessitated, by several of the largest liners that come to the St. Lawrence.

This fine berth is 1,000 feet long, and has a minimum depth of 35 feet at low water.

The shed at this berth is 950 by 80 feet.

May 15, dredge No. 1 for the Harbour Commission arrived from St. John, N.B.

May 28, R.M.S. *Empress of Ireland* sailed.

H.M.S. *Essex* arrived May 31 to act as guard ship to H.R.H. the Duke of Connaught, K.G., Governor General.

The magnificent Allan Line Q.T.R.M. ss. *Calgarian* and *Alsatian* for the Liverpool and Quebec service arrived in port on their maiden trips to the St. Lawrence on May 15 and 28, respectively.

June 12, the new Q.H.C. dredge No. 2 arrived from the United Kingdom.

June 23, the ss. *Northmount* arrived from Fort William with the first cargo of grain for the new elevator.

H.R.H. the Duke of Connaught, K.G., paid an official visit, and inspected the docks and harbour works on June 27.

July 5, H.M.S. *Essex* left on a trip to Newfoundland with H.R.H. the Governor General, and returned July 30.

July 25, H.M.S. *Essex* left for sea.

August 8, the new powerful tug *Laval* for the Harbour Commission arrived from the United Kingdom.

August 14, the German barque *Bellas* was brought into port by the C.G.S. *Margaret*, and detained as a war prize.

August 15, the Austrian ss. *Ida* arrived (en route for Montreal) and was also detained as a war prize.

August 20, the ss. *Ida* was allowed to proceed.

August 18, the National Transcontinental Railway Company's train car ferry ss. *Leonard* arrived from the United Kingdom.

August 26, the new 50-ton floating crane for the Quebec Harbour Commission arrived from the United Kingdom.

The work of transporting the First Canadian expeditionary contingent commenced September 24, with the shipment of horses on the ss. *Montezuma* and *Lakonia*; the last vessels to sail were the ss. *Arcadian* and *Carribean*, on October 1. Thirty-one transports, with a gross tonnage of 314,847 tons, were requisitioned for this service, carrying a total number of 31,000 men, 7,620 horses, ammunition, guns, stores, wagons, etc.



Berths for the ships were always available, and the resources of the harbour were never taxed to their utmost capacity at any time, excepting that (owing to the large number of Quebec men who joined the contingent), there was a scarcity of labour at times.

On several occasions, there were eleven large vessels lying at the berths, aggregating over 118,000 tons gross.

October 15, the C.P.R. ss. *Missanabie*, 12,469 tons, arrived on her maiden trip to the St. Lawrence.

October 23, the new 30,000-bushel steam grain transporter arrived from Glasgow after a very lengthy passage of forty-two days, owing to boisterous weather.

The facilities of the harbour are such, that steamships of any size or class can berth at any time of tide, day or night. Heavy weights up to 50 tons can now be handled with despatch, and since the completion of the new 1,000,000-bushel grain elevator, and the arrival of the grain transporter, vessels berthed at the breakwater or in the tidal basin can be supplied with grain at short notice.

The shed space available for ocean steamers has a length of 5,000 feet, with an average width of 91 feet. Nos. 20, 25, and 26 sheds have railway tracks on the shore side and waterfront of the sheds.

All freight sheds are well supplied with working, passenger, and horse gangways to suit all requirements, and every facility offered to shippers to ensure quick despatch to their vessels.

The sheds are provided with patent fire extinguishers, also with life-saving appliances, which are hung in handy positions outside the sheds, where they can be readily obtained in case of emergency.

An efficient police patrol over the dock property has been maintained by the Harbour Commission constables, and since the declaration of war we have kept a guard on the new elevator and power-house, the Militia Department taking charge of the bridge at the entrance to the docks.

The commissioners' by-laws for 1914 were handed to the masters of all incoming vessels.

November 20, 7.45 p.m., high water, an extraordinary spring tide occurred.

The liner *Georgia* completed loading and left for sea December 3, the ss. *Bangor Head* being the last ocean liner to leave the port of Quebec on December 4.

The river kept clear of ice until December 9; the majority of the vessels were then in winter quarters.

I am, sir, your obedient servant,

JAS. A. MURRAY,

List of Transports and their Gross Tonnage.

Name of Vessel.	Tonnage.
Saxonia.. . . .	14,297
Ivernia.. . . .	14,210
Lapland.. . . .	18,564
Laurentic.. . . .	14,892
Sicilian.. . . .	6,229
Montezuma.. . . .	8,360
Numidian.. . . .	5,530
Lakonia.. . . .	4,686
Cassandra.. . . .	8,135
Tyrolia.. . . .	7,535
Tunisian.. . . .	10,576
Montreal.. . . .	8,644
Megantic.. . . .	14,878
Royal George.. . . .	11,146
Alaunia.. . . .	14,575



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LIST of Transports and their Gross Tonnage.—*Concluded.*

Name of Vessel.	Tonnage.
Athenia.. . . . .	8,668
Manitou.. . . . .	6,848
Grampian.. . . . .	10,074
Virginian.. . . . .	10,574
Andania.. . . . .	12,620
Monmouth.. . . . .	7,535
Zeeland.. . . . .	11,905
Corinthian.. . . . .	6,270
Scandinavian.. . . . .	11,349
Ruthenia.. . . . .	7,394
Franconia.. . . . .	18,148
Royal Edward.. . . . .	11,117
Scotian.. . . . .	10,322
Carribean.. . . . .	5,823
Arcadian.. . . . .	8,939
Manhattan.. . . . .	8,004
Total.. . . . .	317,847

BALANCE SHEET for Quebec Harbour Commission for year ending December 31, 1914.

<i>Capital account.</i>	\$	cts.	\$	cts.
Amount at Debt Grantees .. . . . .	24,094	28		
Beach and D. W. Lots.. . . . .			24,094	28
Capital account, ledger.. . . . .	5,529,886	12		
Revaluation account.. . . . .			161,107	12
Indian Cove property.. . . . .	117,443	10		
St. Nicholas quarry.. . . . .				
Sillery quarry.. . . . .	1,063	70		
Receiver General .. . . . .			43,380	00
Dominion Government.. . . . .			541,393	26
Quebec Harbour debentures.. . . . .			3,612,802	42
First preference bonds (62-63 Vic., chap 34).. . . . .			350,000	00
Accrued interest to January 1.. . . . .			3,000	00
Quebec Harbour debentures (6-7 Edw., 7, chap 36) .. . . .			800,000	00
Quebec Harbour debentures, series A, 1913-14.... . . . .			4,378,000	00
Accrued interest to January 1.. . . . .			23,956	69
<i>Administration.</i>				
Beach lot rentals.. . . . .	34	00		
Debtors, ledger.. . . . .	38,219	82		
Creditors, ledger.. . . . .			52,632	40
Department of Public Works.. . . . .	105,320	71		
“ the Interior.. . . . .	351,437	32		
“ Marine and Fisheries .. . . . .	314	25		
Canadian Stewart Co.,.. . . . .			3,827	44
La Banque Nationale.. . . . .	1,770	37		
Union Bank.. . . . .			150,438	73
Petty Cash Account.. . . . .	700	00		
Accrued rentals to January 1.. . . . .	6,007	03		
Unearned insurance.. . . . .	3,086	07		
Suspense Account.. . . . .	1,413	75		
Beach lots, river St. Charles.. . . . .	561	54		
Profit and loss.. . . . .			670,846	92
<i>Plant.</i>				
Elevator dredge .. . . . .	201,538	84		
Fruhling dredge.. . . . .	231,711	61		
Four locomotives.. . . . .	48,995	19		
General plant, new:.. . . . .	145,219	55		
General plant, old.. . . . .	30,038	00		
Roller fenders.. . . . .	3,794	10		
Floating crane.. . . . .	106,405	32		
Ten deck scows.. . . . .	69,431	12		
Grain transfer boat .. . . . .	131,967	61		
Six dump scows.. . . . .	137,904	41		
Service boat.. . . . .	99,111	35		
<i>Stock</i>				
Lumber .. . . . .	560	46		
Timber .. . . . .	65,673	06		
Rails.. . . . .	6,842	50		







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EXPENDITURE ON CAPITAL ACCOUNT on Approved Estimates out of the vote of Parliament under the "Quebec Harbour Advances Act, 1913."

Dredging .. .. .	\$ 190,265 30
Quay extension, River St. Charles .. .. .	507,007 60
Grain elevator.. .. .	306,272 60
Auxiliary floating elevator.. .. .	131,967 61
Car Ferry terminals.. .. .	4,324 19
Railway yard.. .. .	2,840 11
Lampson's Cove terminals.. .. .	136,832 14
Office building.. .. .	70,024 10
Real Estate.. .. .	108,351 52
General plant and equipment.. .. .	537,074 86
	<hr/>
	\$1,994,960 03

COMPARATIVE STATEMENT of the Quebec Harbour Commissioners Revenue for two years, 1913 and 1914.

Item.	1913.	1914.	Difference.	1914.
Tonnage dues.....	11,923 20	10,239 77	1,683 43	Decrease.
Import " .....	6,967 89	3,568 69	3,399 20	"
Export " .....	2,784 81	2,401 63	383 18	"
Harbour " .....	3,981 94	3,483 68	498 26	"
Earnings, docks, wharves.....	199,603 21	265,779 99	66,176 78	Increase.
Beach and deep water lots.....	1,111 97	1,280 59	168 62	"
Interest .....	2,101 21	326 49	1,774 72	Decrease.
Sundries.....	97 50	113 55	16 05	Increase.
Fines and penalties.....	3,763 00	.....	3,763 00	Decrease.
Total.....	232,334 73	287,194 39	54,859 66	Increase.

Revenue.		Expenditure.	
1914.	\$ cts.	1914.	\$ cts.
To Tonnage dues....	\$10,239 77	By Administrating, engineering staff, salaries, and fees.....	35,078 92
" Import " .....	3,568 69	" Legal and notarial expenditure ....	1,012 15
" Export " .....	2,401 63	" Miscellaneous expenses, printing, stationery, advertising, harbour master's service, general labour, etc.....	11,656 89
" Harbour " .....	3,483 68	" Property expenditure, taxes, insurance, repairs, etc., and the maintenance of docks, wharves, and stores ..	162,793 59
	19,693 77	" Twelve months interest on bonds 62-63 Victoria, chapter 34, and 6-7 Edward VII, chapter 36. ....	46,000 00
" Earnings, dock wharves, and buildings.....	265,779 99	" Interest. ....	9,988 58
" Beach and deep water lots.....	1,280 59	" Workmen's liability. ....	1,305 41
" Interest.....	326 49	" Surplus over the working expenses.	19,358 85
" Sundries.....	113 55		
	<hr/>		<hr/>
	287,194 39		287,194 39

RAOUL RENAULT,  
*Secretary-Treasurer.*







The arrears of interest due to the Finance Department on the debentures of the Dominion Government on outstanding claims are not included in this statement.

RAOUL RENAULT,  
*Secretary-Treasurer.*

We hereby certify that we have examined the statement of assets and liabilities of the Quebec Harbour Commissioners, and we find the same in all particulars the true position of the trust to December 31, 1914, as per books and vouchers.

QUEBEC, February 11, 1915.  
RAULIN AMY, }  
J. A. LARUE, } *Auditors.*



## REPORT OF THE HARBOUR COMMISSIONERS OF THREE RIVERS.

TO HON. J. D. HAZEN,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—The commissioners have already had the honour of transmitting the list, the names, and the tonnage of steamers, ocean ships, and other vessels having unloaded and loaded cargoes in the port of Three Rivers during the year 1914, together with a statement of the receipts of the commission for the same period.

They think it well to add the following observations thereto:—

The surplus of receipts, amounting to \$2,191.87, over the expenses during the year of 1914, shows marked progress, if one takes into account the confusion caused commerce by the war, as well as the obstacles in the way of navigation, arising from the same cause.

The exportation of sawn wood and pulp wood, which generally go to the United States, as well as the shipping of the same to other ports of Canada, was somewhat less, and must be attributed to the depression in real estate transactions and in construction work. We notice here that the smaller the demand for lumber the less sand is used for cement purposes (this being taken from the St. Maurice) and required for exportation.

We must, however, note that towards the end of the fall the lumber trade increased and the great companies engaged in that business gave contracts for log cutting in as great a quantity as in preceding years, which is a very favourable omen for next season.

The importation of cast-iron in our harbour has trebled, owing, no doubt, to the progress made in foundry work.

The same may be said of coal, the importation of which nearly doubled, this being a proof that our workshops in general have produced more.

We have every reason to believe that still a larger quantity of coal will enter our port, but we cannot help pointing out that wharves are lacking. The largest one, which is that at Windmill point, and which should have been ready for traffic two years ago, may not be ready next summer owing to some damage done and to the lack of suitable planking. The surface being of earth, the coal which is unloaded there cannot be reloaded without some of the earth getting mixed up with it, which causes its deterioration, affects its heating capacity and causes dissatisfaction in the workshops. This naturally reflects on our port and injures it as far as that kind of business is concerned.

During the course of the fall, the commissioners were consulted as regards the unloading on our wharves of rails, sulphur, and earth for making pottery, and this has given us hope for the future.

A matter of great importance to be noted is that the Grand Trunk landing at Ste. Angèle de Laval, in front of our town, cannot be used by steamers and other vessels owing to the lack of a sufficiently deep channel and of a deep-water wharf at that point. There is no doubt that if such a wharf existed there, the powerful Grand Trunk Company would use it for receiving cargoes and loading ocean boats. The exportation of products, as well as the imports of the whole south shore, which are very large and which take the Quebec-Montreal route, would go by this route, being quicker and less costly.

The port of Three Rivers should extend farther and should comprise all the wharves on both shores of the river from Rivière-du-Loup up to Grondines, in order to make Three Rivers the centre of distribution of the imports and exports of that region. There is no doubt that traffic would derive great benefits from this.



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The dam being built from the St. Maurice to Grand Mère is nearing completion. As the level of that river will be raised by from 12 feet to 20 feet, boats ascending to La Tuque can be of larger tonnage, and it is quite probable that they will bring to our port an appreciable portion of the traffic of the Great Northern and of the Trans-continental trade.

The geographic site of Three Rivers certainly deserves the special attention of the Government, as it offers the greatest possibilities.

STATEMENT of number and tonnage of Steamers and other Vessels, reported Inward and Outward of the Port of Three Rivers, for the year 1914.

OCEAN TRAFFIC—Return of Vessels Inward.			OCEAN TRAFFIC—Return of Vessels Inward.		
Nationality.	No.	Tons.	Cleared for.	No.	Tons.
British.....	44	105,321	Inland ports.....	43	101,837
Norwegian .....	11	25,371	Great Britain.....	12	28,855
	55	130,692		55	130,692
United States traffic.			Inland traffic.		
Steam barges.....	11	2,229	Schooners and barges.....	305	82,159
Steamers .....	3	3,250	Tugs and steamboats.....	204	25,654
Canal boats.....	182	18,735		509	107,813
Sail barges.....	7	779			
	203	24,993			

RECAPITULATION.

Ocean traffic.....	55	130,692
United States traffic.....	203	24,993
Inland traffic.....	509	107,813
Grand total.....	767	263,498

Exclusive of Richelieu & Ontario and other navigation companies' steamers, local craft and market boats.

MERCHANDISE.

Inward.	Outward.
Soft coal..... 780,227 tons.	Lumber... 29,848,000 feet.
Hard coal..... 12,479 "	Pulpwood .. 3,412 cords.
Sulphur ..... 20,692 "	Sand..... 101,000 tons.
China-clay ..... 1,120 "	Woodpulp..... 6,542 "
Pig-iron..... 10,308 "	Laths ..... 310,000
Sand ... 380 "	
Woodpulp... 2,788 "	
Pulpwood..... 1,589 cords.	
Bricks..... 999,000	

Exclusive of freight in and out by Richelieu & Ontario and other local navigation steamers.



RECEIPTS AND DISBURSEMENTS FOR THE YEAR 1914.

Receipts.	Disbursements.
Tonnage dues..... \$ 2,601 10	Current expenses ..... \$ 2,052 24
Harbour dues: inward..... 11,948 64	Salaries and commission ..... 3,675 54
Harbour dues: outward..... 3,138 91	Printing and stationery..... 43 09
Commutation ... 780 00	Repairs and general harbour expenses 2,081 11
Rent of wharves and moorage..... 4,956 33	Interest on debentures..... 9,500 00
	Sinking fund..... 1,905 00
Total receipts..... \$ 23,424 98	Total expenses on revenue ... \$ 19,256 98
Interest on deposits..... 709 44	Deposits in bank, and cash on hand,
Balance on the 31st Dec., 1913..... 28,569 28	31st Dec., 1914..... 33,446 72
Grand total..... \$ 52,703 70	\$ 52,703 70

THREE RIVERS, January 5, 1915.

ALFRED DESILETS,  
*Secretary-Treasurer.*

PICTOU HARBOUR COMMISSIONERS REPORT.

STATEMENT OF HARBOUR DUES for the year ending December 31, 1914.

RECEIPTS.	
December 31, 1913. Balance on hand..	\$100 00
Collections, 65,984 tons at 1½ cents..	989 76
	\$1,089 76
DISBURSEMENTS.	
1914. Paid salary of harbour master..	200 00
January 12, 1915. Paid to credit of Harbour Commissioners. ..	789 76
December 31, 1914. Balance on hand ..	100 00
	\$1,089 76

PICTOU, N.S.,  
December 31, 1914.

R. P. FRASER,  
*Collector of Customs.*

1913.	Dr.	\$ cts.	\$ cts.
Dec. 31	By Balance.....	1,124 11	
1914.			
Dec. 31	Harbour dues for year ending Dec. 31, 1914.....	789 76	1,913 87
1914.	Cr.		
May 13	To paid E. C. McDonald, bushing East river.....	20 00	
" 18	Wm. McLean, bushing harbour channel.....	12 00	
" 18	SS. "Hiawatha", placing harbour buoy.....	30 00	
June 30	Secretary .....	50 00	
" 30	P. Hall, painting buoys.....	7 50	
Aug. 25	E. C. McDonald, balance.....	10 00	
" 25	Printing regulations, Harbour.....	12 50	
Nov. 24	Wm. McLean, balance .....	6 00	
Dec. 9	SS. "Hiawatha", taking in buoys.....	30 00	
" 9	Legal expenses .....	50 00	
" 31	Secretary for half year.....	50 00	
	Balance.....		278 00
	By Balance.....		1,635 87
			1,913 87

PICTOU, December 31, 1914.

H. B. ROSS, *Secretary.*



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REPORT OF BELLEVILLE HARBOUR COMMISSIONERS.

BELLEVILLE, ONT., February 16, 1915.

1913			
Dec.	31—To balance in bank, as per book.. . . .	\$ 489 37	
1914.			
July	21—To harbour dues.. . . .	806 25	
Aug.	24—To “ “ .. . . .	277 17	
Sept.	23—To “ “ .. . . .	282 92	
Nov.	26—To “ “ .. . . .	455 56	
Dec.	1—To “ “ .. . . .	3 50	
		<hr/>	
		\$2,314 77	
March	18—By printing, plans, etc.,.. . . .		\$ 35 80
April	6—By auditor's fees.. . . .		5 00
May	22—By secretary's fees.. . . .		50 00
Oct.	1—By interest on debentures.. . . .		600 00
Nov.	19—By telephone to Ottawa.. . . .		1 00
Dec.	7—By sinking fund.. . . .		645 19
“	28—By harbour master's salary (12 months).. .		600 00
“	31—By balance in bank, as per book.. . . .		377 78
		<hr/>	<hr/>
		\$2,314 77	\$2,314 77

STATEMENT of Sinking Fund to December 31, 1914.

To credit of Sinking Fund, as per statement rendered		
November 30, 1913 .. . . .		\$4,907 60
Dec.	7—To deposit .. . . .	645 19
“	31—To interest to date.. . . .	159 76
		<hr/>
		\$5,712 55

The above is a correct statement of the sinking fund to December 31, 1914.

B. L. HYMAN,  
Chairman.

BELLEVILLE, ONT., February 16, 1915.

IMPORTS.

16,541 tons of coal.. . . .	\$1,654 10	
12,000 feet of lumber.. . . .	60	
546 tons of merchandise .. . . .	54 69	
		<hr/>
		\$1,709 30

EXPORTS.

874 barrels oil .. . . .	\$ 26 22	
536 tons of merchandise.. . . .	53 60	
650 tons of cheese .. . . .	65 00	144 82
		<hr/>
		\$1,854 12
Disbursements, sundry expenses .. . . .		28 72
		<hr/>
		\$1,825 40

All of which is respectfully submitted.

I have the honour to be, sir,

Your obedient servant,

GEO. DULMAGE,  
Harbour Master.



REPORT BY VANCOUVER HARBOUR COMMISSIONERS, MAY 16, 1913, TO MARCH 31, 1915.

The Hon. J. D. HAZEN, K.C.,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—The Harbour Commissioners herewith respectfully submit a report covering the period from May 16, 1913, to March 31, 1915, including (as requested by section 36, chapter 54, 3-4 George V) an account of all moneys received and disbursed.

Although the work accomplished by the commissioners has necessarily been, to a great extent, of a preliminary character, the importance of it has been fully realized and, with careful deliberation, the basis of a system has been laid for the proper organization and control of harbour affairs.

Following a survey of the harbour made by the Dominion Government in the years 1912 and 1913, plans have been completed on which established headlines, Crown grants, leases, and other features are shown; this involved much time and labour, but the permanent advantages of it are obvious.

Various other useful plans have been prepared and a mass of minute information has been collected which will greatly facilitate the work of the commissioners in the future.

The issuing of a Crown grant of 41 acres of tide flats at Granville street bridge in favour of the commissioners is a source of gratification, as it marks the completion of the first stage of a scheme to which much earnest effort has been given.

Among the chief hindrances in the way of the city of Vancouver's industrial development has been, the difficulty of obtaining suitable sites at economical rentals; and it was with a view to removing this serious obstacle that the idea of reclaiming these tide flats was originally conceived. The work will cost in the neighbourhood of \$300,000.

It is proposed to subdivide this area when reclaimed into sites of various sizes for industries and warehouses, which, with a few exceptions, will have trackage and water-frontage with a navigable channel 20 feet deep at low water, and 350 feet wide. These sites will be leased for twenty-one years at moderate rentals, with an option of two renewals.

As already, at the date of writing, many applications have been received, the judgment of the commissioners is confirmed in regard to the necessity for such provision being made. In fact, it is generally believed that this scheme, when completed, will give a powerful stimulus to the industrial and commercial development of the city of Vancouver.

Important as this project is in itself, it is, however, only the first unit of an extensive scheme of rail and water terminal facilities which the commissioners have in view, to cope with the increase in shipping that will come to this port when normal conditions return.

General satisfaction has been expressed regarding the improved condition of the waters of the harbour.

Previous to the commissioners taking office, the amount of floating oil was such as to constitute not only a nuisance but also a very serious menace in the way of a conflagration—a danger which was magnified by the absence of proper fire-fighting equipment. Careful investigations were made as to the source of the leakages, and various successful prosecutions were made under the by-laws, with most satisfactory results.

In this connection should be mentioned another improvement. Floating logs and débris of various kinds had been an increasing hindrance and danger to naviga-



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tion, more especially to ferry boats which, in not a few cases, suffered serious damage, necessitating costly repairs. To mitigate this trouble, a launch was purchased which has been almost constantly employed. No less than 1,519 logs and trees have been taken out during the year; and, while it is impossible, on account of conditions surrounding the harbour, to entirely remove this dangerous inconvenience, a very noticeable and much appreciated change in this regard has been effected.

In view of the anticipated increase in shipping at this port, the commissioners note with satisfaction the progress that is being made towards the completion of certain harbour works.

The widening of the channel at the harbour entrance from 450 feet to 1,200 feet, on which \$500,000 has been spent, up to the present, and for the completion of which about \$250,000 more is to be expended, is an undertaking that will add to the port of Vancouver's reputation of being one of the finest harbours in the world. Although the old channel was sufficient for ships of the deepest draught, the widening of the channel will make the entrance proportionate to the extensive accommodation of the inner harbour and will remove the possibility of congestion. An indirect result of these dredging operations, which is already noticeable to some extent, will be to decrease very considerably the strength of the tidal current both at ebb and flow.

The new wharf now under construction at the foot of Salisbury Drive and which, it is understood, will be completed about November next at an approximate cost of one and three-quarter million dollars, is regarded as a noteworthy step in the direction of providing this harbour with facilities the need of which is increasingly felt, while the dredging of a channel 20 feet deep at low water from English bay at a cost of about \$850,000, will be of great assistance to the industries on False creek.

The building of a grain elevator at Vancouver is a timely provision. Careful investigation and consideration lead to the conclusion that, as a result of the opening of the Panama canal, combined with the facts that this port is open for navigation all the year round and the rail haulage is less by this route than by the East, the grain grown in the Western prairie provinces will be shipped in steadily increasing proportion via Vancouver, and the commissioners look forward with satisfaction to the completion by the end of this year of a large terminal elevator on the site of the new wharf, with a total storage capacity of 1,250,000 bushels, and a loading capacity of 30,000 bushels of grain per hour.

From the Customs returns for the year ending March 31, 1915, the classification of shipping entered inwards and outwards at this port is as follows:—

Foreign, going inwards, 1,538 vessels, tonnage, 1,871,034 tons.

Foreign, going outwards, 1,351 vessels, tonnage, 1,673,029 tons.

Coastwise, going inwards, 7,623 vessels, tonnage, 3,313,377 tons.

Coastwise, going outwards, 7,966 vessels, tonnage, 3,049,123 tons.

In conclusion the commissioners desire to record that the various members of the staff have rendered diligent and loyal service.

F. CARTER COTTON,

*President.*

JAS. A. FULLERTON,

S. McCLAY,

*Commissioners.*



SUMMARIZED STATEMENT of operations from May 16, 1913 (being date of incorporation) to March 31, 1915.

Revenue.		Disbursements.	
Harbour dues.....	\$ 5,317 03	Administration and miscellaneous expenses....	\$ 23,989 46
Waterlot rentals.....	20,457 46	Insurance.....	106 00
Fines and penalties.....	352 25	Office furniture and fittings	1,881 35
Port warden fees .....	1,707 00	Launch.....	1,700 00
Crown grants.....	1,001 00	Launch expense account..	1,627 98
Interest.....	49 10	Harbour expense account..	178 50
Sand account.....	1 10		
Total revenue.....	\$ 28,875 94	Total disbursements....	\$ 29,483 29
SUNDRY RECEIPTS—		LESS—Outstanding accounts payable.....	2,315 77
Payments received held in trust pending issue of Crown grant.....	3,000 00		\$ 27,167 52
		Bal. at March 31, 1915.	
		Cash on hand	6 30
		Bank .. .	74 77
		Bank trust account.....	1,040 10
			\$ 3,121 17
		Sundry accounts receivable	1,587 25
			4,708 42
	31,875 94		\$ 31,875 94

W. D. HARRIS,  
Secretary.

VANCOUVER, B.C., April 21, 1915.

Certified correct:  
WILSON & WILSON,  
Auditors

TORONTO HARBOUR COMMISSION.

The Toronto Harbour Commissioners.

GENTLEMEN,—I have the honour to submit my report for the year 1914.

The harbour was not frozen over last winter until January 13, 1914, and was clear of ice on April 2; having been frozen over for 79 days or nine days longer than for last year.

The first vessel to arrive was the *Dalhousie City*, Captain Maddock, with passengers and cargo, on April 4.

The last arrival was the *Macassa*, Captain Henderson, on December 6. She came in light for winter quarters.

The highest water recorded on the Commissioners' gauge was 24½ inches above zero on June 7, nad the lowest water was recorded as 8 below zero on December 22. Average for the year 11½ above zero.

The quantity of coal imported by vessel is as below, viz:—

	Tons.
Anthracite coal.. . . . .	103,020
Bithuminous coal and screenings.. . . . .	47,570
	150,590

This amount is 10,802 tons more than in 1913.



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The total quantity of coal imported into Toronto by rail and vessel as returns from Ottawa is as follows, viz:—

	Tons.
Anthracite coal.. . . . .	872,712
Soft coal and screenings.. . . . .	1,114,472 :2
	<u>1,987,184</u>

The number of vessels arriving in this port for 1914 was 2,961, a falling off of 433 vessels. Below is a comparative statement of arrivals.

Kind of Vessel.	1913.	1914.	Decrease.	Tonnage, gross.
Propellers . . . . .	769	406	363	418,912
Passenger steamers . . . . .	2,267	2,212	55	2,672,263
Sail and tow barges . . . . .	358	343	15	49,458
	<u>3,394</u>	<u>2,061</u>	<u>433</u>	<u>3,040,633</u>

The Harbour Dues for this year amount to.. . . . .	\$ 8,036 20
In 1913 the Harbour Dues amounted to.. . . . .	8,593 24

This shows a deficit in this year of.. . . . . \$ 557 04

Until the middle of summer the freight business was more than usually good, the amount collected for harbour dues being considerably above that in the previous year, which was the banner year for harbour dues. But the freight business, in common I suppose with most other businesses fell off to almost nothing and except for the increase in coal the deficit would have been larger.

The harbour buoys were placed out April 20, and taken in on December 2. The gas buoy was placed at the mouth of the intake pipe on May 21; it was re-charged on October 1, and taken in on December 3. Buoys were placed at the Exhibition and Humber river for motor boat racing on August 21, nad taken in on September 18. The Bell Telephone Company's submarine cable was taken up on October 28, to admit of dredging in the bay at the foot of John street. Bell buoys were placed off Gibraltar Point and at the intake pipe on June 27, and taken in November 23.

There are 118 vessels wintering here this season, viz.:—11 passenger steamers, 11 steam ferries, 14 propellers, 4 tow barges, 19 steam tugs, 10 steam yachts, 38 pleasure yachts, and 11 dredges with their scows and derricks; in all about 55,212 tons.

Below I give a comparative statement of the goods arriving at this port for the years 1913 and 1914.

Description of Goods.	1913.	1914.
General merchandise..... Tons.	99,415	82,396
Coal..... "	139,788	150,599
Horses, horned cattle and motors.....	486	153
Fruit..... Brls.	527	683
"..... Crates.	33,085	9,705
"..... Baskets.	501,839	396,695
"..... Bags.	543	181
Grain..... Bushels.	3,330	
Ice..... Tons.	9,379	11,249
Common bricks.....	574,000	
Fire bricks.....	159,000	
Lake stone..... Toise.	13,050	10,658
Lumber..... Ft B.M.		2,646,000
Oil, in bulk..... Brls.	131,953	107,430



The harbour dues collected during the year are as follows, viz:—

150,590 tons coal at 3 cents.....	\$	4,517	70
82,396 tons general merchandise at 3 cents..		2,461	88
10,658 toise Lake stone.....		532	90
153 Horses, etc., etc., at 5 cents.....		15	00
683 brls. fruit .....	}	.....	306 55
9,705 crates fruit.....			
390,635 baskets, fruit.....			
181 bags, fruit.....			
2,646,000 ft. B.M. lumber at 3 cents .....		79	38
11,249 tons, ice at 1 cent .....		112	49
		\$	8,036 20

Mr. J. M. Wilson, engineer-in-charge, Public Works Department, reports as follows, viz:—

The new western channel is completed and carried to a depth of 16 feet below zero of the Harbour Commissioners' gauge and a clear width of 400 feet. The northerly pier is 2,236 feet in length, and the southerly pier is 2,538 feet in length. The westerly end is 30 feet wide and the remainder 20 feet wide, as is also the entire length of the northern pier. Both have concrete superstructures on cribwork substructure resting on a rock foundation. The revetment wall has been completed at the eastely end of the new western channel, 1,800 feet in length, of which 850 feet extends southerly from the south pier and 950 feet northerly and easterly from the north pier. About 56 acres have been reclaimed by the hydraulic dredging in connection with these works, composed of about 28 acres on either side of the new channel. The magnetic bearing of the new channel is north 61 degrees and 45 minutes, east. East channel: Six hundred and sixty feet of concrete superstructure, has been added this year to the east pier of the eastern channel, having a width of 40 feet, making a total of 1,260 feet renewed in concrete up to date on the northerly portion of the said pier. The magnetic bearing of the eastern channel is north 34 degrees and 45 minutes, west.

Mr. R. F. Stupart, director of the meteorological service in Toronto, reports as follows: Cautionary signals were hoisted twelve times during the season for moderate gales, and heavy gales were displayed on six occasions, namely, five times in November, and once in the beginning of December.

The cautionary signals displayed on the 1st and 15th November were not justified by subsequent moderate gales, while on the 18th and 28th of November and on the 3rd of December, when fresh to heavy gales were hoisted, moderate gales were only experienced at Toronto, although the gale was reported as locally fresh or heavy on Lake Ontario. The season of navigation on the Great Lakes was marked by an absence of severe storms, and of those occurring few reached the force of a fresh gale.

The precipitation for the year was 27·18 inches comprising 19·75 inches of rain, and 7·43 of snow reduced to water.

Dredging was actively engaged in throughout the season at the mouths of the city sewers, at the passenger docks, the freight wharves and at various points in the harbour; a statement of this work will be seen in the report of the Chief Engineer.

Easterly winds have greatly prevailed on Lake Ontario during this season of navigation, having the effect of keeping up the water level in this lake, thus benefiting water commerce.

Before closing my report, I dsire to give full credit to the deputy harbourmaster, Mr. John Allan. He has had much to do and he has done it well and has been of the greatest assistance to myself.

I am, gentlemen,  
Your obedient servant,  
(Sgd.) COLIN D. POSTLETHWAITE,  
*Harbourmaster.*



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## APPENDIX No. 14.

## PORT WARDENS' REPORTS FOR THE YEAR ENDING DECEMBER 31, 1914.

## REPORT OF THE ANNAPOLIS ROYAL PORT WARDEN.

ANNAPOLIS ROYAL, December 26, 1914.

Deputy Minister of Marine,  
Ottawa.

SIR,—In compliance with the Act requiring me to make a report of my year's work, as port warden for the port of Annapolis Royal, I beg to say that for the year 1914, I have nothing to report.

Yours truly,

JOSEPH J. MELANCON,

*Port Warden.*

## REPORT OF THE PORT WARDEN OF CHATHAM, N.B.

CHATHAM, N.B., February 10, 1915.

The Deputy Minister of Marine,  
Ottawa.

SIR,—I have the honour to enclose herewith reports of surveys held by me during 1914.

The season of navigation was an average one, closing on December 9.

Yours respectfully,

M. A. GOGGIN,

*Port Warden, Chatham.*

CHATHAM, June 2, 1914.

At the request of Captain Joseph Jimmo of the schooner *J. L. Colwell* of St. John, N.B., 99 registered tons, now lying at the port of Chatham with a cargo of coal on board, I, R. J. Walls, acting port warden; Angus McEachern, master mariner, and R. R. McLean, shipwright, proceeded on board the said schooner for the purpose of holding a survey, the vessel having previously struck on the ground off Escuminac lightstation, and unshipped her rudder, and sprung a leak while waiting there to discharge a cargo of coal. We found the vessel making 8 inches of water per hour, lying at the wharf in still water. We also found that the vessel had been strained considerably, owing to the wedges of the main mast being started, and waterways and stanchions on the starboard side strained and oakum spewed out of the seams. The starboard quarter was damaged, with loss of starboard anchor and 30 fathoms of chain. We therefore recommended that the cargo be discharged, voyage abandoned, that temporary repairs be made, and that the vessel proceed to a port where dry docking facilities were available to effect permanent repairs.

R. J. WALLS, *Acting Port Warden.*ANGUS MCEACHERN, *Master Mariner.*

R. R. McLEAN.



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CHATHAM, August 22, 1914.

At the request of Captain Logan of the steamship *Yarborough*, of Glasgow, 1988 registered tons, from Chatham, N.B., bound to Garston, Scotland, with a cargo of deals:—

I, M. A. Goggin, port warden; R. J. Walls, harbour master; of Chatham, N.B., and H. Haviland, mechanical superintendent, proceeded to-day on board the said ship for the purpose of holding a survey—the ship then lying outside the Miramichi bar, with her forward peak full of water.

We ordered the pumps set to work and pumped for three hours steadily and found that the pumps made no impression on lowering the water in the hold; we therefore abandoned the idea of pumping her out.

We recommended that Captain Logan proceed to Pictou, N.S., with the ship, where he could procure divers to ascertain the damage and make necessary repairs to enable him to proceed on his voyage—there being no chance for a diver to work where the ship was lying, on account of the weather.

M. A. GOGGIN, *Port Warden*.

R. J. WALLS, *Harbour Master*.

HARRY HAVILAND, *Mechanical Superintendent*.

CHATHAM, N.B., October 19, 1914.

At the request of Captain Thomas King, of the schooner *Jennie B. Hodgdon*, 85 registered tons, now lying at the port of Chatham:—

We, M. A. Goggin, port warden, R. J. Wallis, harbour master, and Captain King, master mariner, proceeded on board the said vessel for the purpose of holding a survey, the vessel having previously been ashore at Caraquet and damaged her forefoot and stem.

We found on going aboard that temporary repairs had been made, and that the vessel was still making some water. We ordered her pumped dry, and let stand for four hours. On our return after four hours, we found that she had made four inches of water, on an average 1 inch per hour, which we considered very small leak.

We found the vessel's sails and rigging all in good condition, and therefore recommended that Captain King take on board a cargo of lumber and proceed to Prince Edward Island or Gut of Canso. We considered this vessel perfectly seaworthy and safe to proceed on voyage above mentioned either lumber-laden or in ballast.

We also recommended that the vessel, on arriving at her port of destination, be hauled out for permanent repairs, or at the first available opportunity.

M. A. GOGGIN, *Port Warden*,

R. J. WALLS, *Harbour Master*.

THOMAS KING, *Master Mariner*.

#### REPORT OF THE PORT WARDEN AT HALIFAX, N.S.

HALIFAX, N.S., January 2, 1915.

Deputy Minister of Marine,  
Ottawa.

SIR,—I have the honour to submit my report for the year ending December 31, 1914, accompanied by a statement in duplicate of the receipts and expenditures during that period.

Surveys have been held on eleven steamers and two schooners, which arrived at this port in a damaged condition during the year.



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The necessary repairs were made to the vessels, and those of them bound to other ports proceeded to their destinations, where they have safely arrived.

During the year ending December 31, 1914, there have been shipped from the port of Halifax, to ports in Great Britain, 1,274,736 bushels of wheat.

No live stock have been shipped from Halifax during the year 1914, except horses by the War Department.

RECEIPTS AND EXPENDITURES OF THE PORT WARDEN AT HALIFAX, N.S., FROM JANUARY 1, 1914, TO DECEMBER 31, 1914.

Dr.	Cr.
To Amount received as fees..\$ 2,357 25	By Paid assistants and office ex-
	penses.. .. .. \$1,071 21
	Amount to Port Warden.. .. 1,286 04
<hr/>	<hr/>
\$2,357 25	\$2,357 25

I hereby certify that the above is a true and correct statement of the receipts and expenditures of the Port Warden at Halifax, N.S., from January 1, 1914, to December 31, 1914.

NEIL HALL,  
*Port Warden.*

REPORT OF THE PORT WARDEN OF LOUISBURG.

LOUISBURG, February 10, 1915.

To The Deputy Minister of Marine,  
Ottawa.

SIR,—I beg to submit the following report as port warden for the port of Louisburg, N.S., for the year ending December 31, 1914:—

January 26, 1914, ss. <i>Astarte</i> survey on ship afloat after ship being aground.. .. .	\$ 8 00
January 26, 1914, Molina certificate of sea worthiness .. .. .	8 00
July 6, 1914, <i>Wearpool</i> certificate of seaworthiness.. .. .	8 00
August 24, 1914, <i>Stanley</i> , certificate of seaworthiness.. .. .	8 00
August 28, 1914, <i>Dinsdale Hall</i> , certificate of seaworthiness.. .. .	8 00
September 7, 1914, <i>British Transport</i> , certificate of seaworthiness.. .. .	8 00
October 8, 1914, <i>Asken Hall</i> , certificate of seaworthiness.. .. .	8 00
October 23, 1914, <i>Diana</i> , certificate of seaworthiness.. .. .	8 00
October 30, 1914, <i>Floriston</i> , survey ship stranded, ship condemned.. .. .	8 00
November 11, 1914, <i>Harala</i> , certificate of seaworthiness.. .. .	8 00
December 1, 1914, <i>Forne</i> , certificate of seaworthiness.. .. .	8 00
December 31, 1914, <i>Grontoft</i> , certificate of seaworthiness.. .. .	8 00
	<hr/>
	\$96 00

I am, sir,

Your obedient servant,

DONALD J. MATHESON,  
*Port Warden.*



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## REPORT OF THE PORT WARDEN AT MONTREAL.

MONTREAL, January 7, 1915.

To The Deputy Minister of Marine,  
Ottawa.

SIR,—I have the honour, by direction of the council of this board, and in compliance with section 31 of the Act governing the port warden's office, 45 Vic., chap. 45, to transmit herewith documents as follows:—

1. Port Warden's annual report for the year 1914.
2. Audited statement of receipts and expenditures of the port warden's office for the year ending December 31, 1914.
3. Statement of investments of port warden surplus funds.

I have the honour to be, sir,

Your obedient servant,

GEO. HADRILL,  
*Secretary.*

MONTREAL, December 23, 1914.

To The President and Council of the Montreal Board of Trade.

GENTLEMEN,—I have the honour to submit the annual report of the business of the port warden's office, with statement of the exports, receipts and expenditure for the year 1914.

The river St. Lawrence was clear of ice and the buoys laid from this port to the gulf on the 25th April, but the ocean steamships could not avail themselves of it, as they were detained by field ice outside the Cabot straits.

The season of ocean navigation opened on the 29th April by the arrival from sea of the steamships *Corsican*, *Saturnia*, and *Ionian*, ten days later than last year.

The steamship *Jacona*, of the Thomson Line, was the first steamship to enter the St. Lawrence by the straits of Belle Isle; she passed point Amour inward at 8 p.m. June 27, but owing to the large quantities of field ice and bergs reported, the strait was very little used this season, and as the reports of the signal service were suppressed after war was declared, no record could be kept of vessels using that route.

The sudden and unexpected declaration of war with Germany at midnight on the 4th August caused a stagnation of the shipping for a time, but as soon as the vessels were assured of protection the sailings were resumed.

The British Government having acquired several of the regular line steamships, the sailings have been very irregular, and the imports smaller than they otherwise would have been. The arrivals of vessels were increased by tramp steamers which came to load full cargoes of grain.

With the exception of the grounding of the steamships *Anglo Brazilian* and *Zeeland*, we have no disasters of a serious nature to report on the river between this port and Quebec.

Navigation closed by the departure of the steamship *Manchester Spinner* at 8 a.m. December 4.

Five hundred and sixty foreign-going steamships reported at this office this season, with a tonnage of 2,063,517 tons, against 478 vessels of 2,033,752 tons last season, an increase of eighty-two vessels and 29,765 tons.

The business to the lower ports this season, consisted of: entered, 362 vessels of all classes with a tonnage of 688,284 tons, against 349 vessels of 647,903 tons, an increase of thirteen vessels and 40,381 tons.



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Clearances of vessels loaded for the lower ports this season were: 107 vessels of all classes, with a tonnage of 65,759 tons, against 100 vessels of 75,873 tons, an increase of seven vessels and decrease of 10,114 tons from last season.

The shipments of various kinds for the past season, manifested and reported at this office are as per attached statements.

All of which is respectfully submitted,

ARCHIBALD REID,

*Port Warden.*

COMPARATIVE STATEMENT of shipments, 1913 and 1914, as per manifests reported at the port warden's office.

Description.	1914.	1913.	Increase.	Decrease.
Wheat . . . . . Bush.	61,453,112	33,707,331	27,745,781	
Buckwheat . . . . . "		5,208		5,208
Peas . . . . . "	10,628	22,732		12,104
Barley . . . . . "	4,553,544	5,188,228		634,684
Oats . . . . . "	8,532,864	7,325,713	1,207,151	
Corn . . . . . "		50,820		50,820
Flaxseed . . . . . "	183,186	7,929,115		7,745,929
Rye . . . . . "	366,462	210,804	155,658	
	75,099,796	54,439,951	20,108,590	8,448,745
			8,448,745	
Total increase for the year 1914.			20,659,845	
Flour and meal . . . . . Bbls.	1,773,215	1,915,587		142,372
Ashes . . . . . "	319	336		17
Apples . . . . . "	176,720	222,814		46,094
Cheese . . . . . Boxes.	1,483,151	1,577,013		93,862
Butter . . . . . "	7,228	1,728	5,500	
Eggs . . . . . "	113,536		113,536	
Boxmeats . . . . . "	215,613	162,278	53,335	
Lard . . . . . "	514,114	702,276		188,162
Pulp . . . . . Tons.	4,490	6,521		2,031
Paper . . . . . "	20,553	13,367	7,186	
Sundries . . . . . "	122,398	138,453		16,057
Hay . . . . . "	25,571	18,067	7,504	
Oilcake . . . . . "	8,700	19,546		10,846
Minerals . . . . . "	17,512	24,644		7,132
Dried Grains . . . . . "		873		873
Lumber . . . . . Feet. B.M.	66,423,321	97,890,047		31,466,726
Cattle . . . . . Head.	1	514		513
Horses and mules . . . . . "	12,005	231	11,774	
Sheep . . . . . "	147	296		149

STATEMENT of oversea or foreign-going vessels.

Description.	1914.	1913.
Steamers . . . . .	No. 560 2,063,517 tons.	No. 478 2,033,752 tons.

Increase of 82 vessels and 29,765 tons.



STATEMENT of lower port arrivals.

Description.	1914.	1913.
Steamers.....	No. 320 684,369 tons.	No. 302 643,536 tons.
Sailing vessels.....	" 42 3,915 "	" 47 4,367 "
	No. 362 688,284 tons.	No. 349 647,903 tons.

Increase of 13 vessels and 40,381 tons.

CLEARANCES for lower ports.

Description.	1914.	1913.
Steamers.....	No. 87 63,803 tons.	No. 81 74,058 tons.
Sailing vessels.....	" 20 1,956 "	" 19 1,815 "
	No. 107 65,759 tons.	No. 100 75,873 tons.

Increase of 7 vessels and decrease of 10,114 tons.

Revenue, 1913.....	\$9,711 98
" 1914. ....	9,412 06
Decrease.....	\$ 229 92











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REPORT OF NANAIMO AND DEPARTURE BAY, B.C., PORT WARDEN.

NANAIMO, B.C., January 2, 1915.

The Deputy Minister of Marine,  
Ottawa.

SIR,—I have the honour to submit my report as port warden for the port of Nanaimo and Departure bay.

Total amount collected during the past year for surveys on vessels, \$15.

I am, sir,

Your obedient servant,

J. S. KNARSTON,  
*Port Warden.*

PORT HAWKESBURY PORT WARDEN.

PORT HAWKESBURY, N.S., January 2, 1915.

Deputy Minister of Marine,  
Ottawa.

SIR,—I have the honour to submit my annual report of the doings of this office with a statement of the fees collected by me and also the attendant's expenses during the past year.

I have the honour to be, sir,

Your obedient servant,

NICHOLAS MARTIN,

1 survey on schooner <i>Aquadilla</i> .. . . .	\$18 00	
1 survey on schooner <i>Gladys</i> .. . . .	18 00	
1 survey on schooner <i>Valiant</i> .. . . .	5 00	
2 surveys on schooner <i>E. M. Zellers</i> .. . . .	23 00	
		\$64 00
Paid J. J. Hennesey, master mariner.. . . .	10 00	
Edward Dorly, shipwright.. . . .	5 00	
A. V. Forbs, Lloyds agent.. . . .	10 00	
John Langley, shipwright.. . . .	5 00	
		30 00
Balance .. . . .		34 00
Amount reverting to Port Warden.. . . .		\$34 00

I hereby certify the above to be correct to the best of my knowledge and belief.

NICHOLAS MARTIN,  
*Port Warden.*

REPORT OF THE QUEBEC PORT WARDEN.

QUEBEC, December 30, 1914.

Deputy Minister of Marine,  
Ottawa.

SIR,—As requested by the 30th section of the port warden's rules, I beg respectfully to submit the following annual statement of the business transacted in this office during the year ending the 30th December, 1914.



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Fifty-four steamers were surveyed for clearance outwards, after taking part cargo on board at this port, having previously shipped part cargo of grain and other goods at Montreal.

Seventy-five steamers were surveyed, their hatches opened and cargo examined, on their arrival from sea.

Eight steamers and one barge were surveyed on account of collision damage.

Six steamers and one yacht were surveyed on account of grounding and stranding in the river St. Lawrence below and above Quebec.

Two steamers were surveyed and value estimated for general average purpose.

Twenty-seven surveys were held on damaged goods.

The receipts and disbursements of this office are as follows:—

Receipts.. . . .	\$1,524 50
Expenses.. . . .	288 00
	<hr/>
	\$1,236 50

With much respect, I remain

Your obedient servant,

ALEX. RUSSELL,

Port Warden.

NORTH SYDNEY PORT WARDEN.

NORTH SYDNEY, N.S., August 2, 1915.

Deputy Minister of Marine,

SIR,—I beg to submit my report as Port Warden, for the year 1915.

Steamships surveyed—

June 10.—SS. <i>Sargassa</i> .. . . .	\$ 8 00
“ 13.—SS. <i>Crown of Cordova</i> .. . . .	8 00
“ 16.—SS. <i>Crown of Castile</i> .. . . .	8 00
“ 09.—SS. <i>Boldunel</i> .. . . .	8 00
July 3.—SS. <i>Coningsby</i> .. . . .	8 00
“ 20.—SS. <i>Seranna</i> .. . . .	8 00
Aug. 12.—SS. <i>Savan</i> .. . . .	8 00
“ 20.—SS. <i>Statia</i> .. . . .	8 00
Sept. 8.—SS. <i>Saba</i> .. . . .	8 00
Oct. 14.—SS. <i>Sargasso</i> .. . . .	8 00
Nov. 9.—SS. <i>Marie Rose</i> .. . . .	8 00
“ 18.—SS. <i>Stiklestad</i> .. . . .	8 00
Dec. 7.—SS. <i>Grangewood</i> .. . . .	8 00
Total amount collected .. . . .	<hr/> \$104 00

(Signed) W. H. KELLY,  
Port Warden.

VANCOUVER PORT WARDEN.

VANCOUVER, B.C., January 7, 1915.

The Deputy Minister of Marine,  
Ottawa.

SIR,—I have the honour to submit the annual report of the port warden’s office, in compliance with R. S. 113, chap. 13, section 599 of the Canada Shipping Act, for the year 1914.

The total number of surveys held on hatches of vessels arriving at this port was seventy-nine. Included in this number fifty-seven vessels’ cargoes unloaded at this



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port were surveyed for damage (by perils of the sea and otherwise), and reported thereon. Damage to goods received by merchants of this city at their respective premises ex-steamers, to the number of eight, were examined and reported upon, also, eight vessels which loaded part cargoes outward with wheat were duly examined and certificates granted in accordance with the provisions of the Canada Shipping Act. The quantity of wheat shipped from the port of Vancouver during the year amounted in all to 2,705 tons, made up as follows:—

Mexico.. . . .	767·6 tons.
Japan.. . . .	1,241·4 “
New Zealand.. . . .	696·0 “
<hr/>	
Total tons.. . . .	2,705·0 “

Owing to the depression of trade during the past year, fewer vessels overseas with lesser individual cargoes arrived than during the previous year. Towards the end of the past year and since the outbreak of the war, the Canadian Pacific Railway Company's overseas fleet consisting of five vessels was requisitioned by the Admiralty, together with several other regular liners trading to this port, notably the Royal Mail line. However, their sailings have latterly been filled up by vessels of the Japanese Line “Osaka Shosen Kaisha” and the “Russian Volunteer Fleet,” the first of each of these lines vessels arrived on their initial voyages towards the close of the year.

The total amount of fees collected for services rendered was \$1,324.50.

The total number of surveys held on hatches of vessels arriving at this port from the 1st of January to 31st March, 1915, was eighteen. Cargoes unloaded at this port were surveyed for damage to the number of eighteen, one vessel was surveyed for insurance purposes, also one further survey held on account of structural damage.

The quantity of wheat shipped from the port of Vancouver from January 1 to March 31, is as follows:—

January 16, steamship *Hornellen*, 23,450 bushels for New Zealand.

The total amount of fees collected during this quarter was \$382.50.

I have the honour to be, sirs,

Your obedient servant,

S. CULLINGTON,

*Port Warden.*

---

REPORT OF THE PORT WARDEN OF VICTORIA AND ESQUIMALT, B.C.

VICTORIA, B.C., January 5, 1914.

The Deputy Minister of Marine,  
Ottawa.

SIR,—I have the honour of submitting herewith my report as port warden for the ports of Victoria and Esquimalt, B.C., for the year ending on the 31st of December, 1914.

Amount of fees received for surveys on the hatches and cargo of thirty-eight steamships, \$488.

I have the honour to be, sir,

Your obedient servant,

CHAS. E. CLARE,

*Port Warden.*



6 GEORGE V, A. 1915

REPORT OF THE PORT WARDEN OF WESTPORT, N.S.

WESTPORT, N.S., January 4, 1915.

Deputy Minister of Marine,  
Ottawa.

SIR,—I beg leave to report that as port warden for the port of Westport, N.S., that there has been no business that has needed my attention during the past year of 1914.

I am, respectfully yours,  
  
WM. B. WELCH,  
Port Warden.

REPORT OF THE PORT WARDEN, YARMOUTH, N.S.

YARMOUTH, N.S., January 4, 1915.

Deputy Minister of Marine,  
Ottawa.

SIR,—Enclosed please find year 1914, port warden's returns.  
Would have had these in sooner but have been busy with steamship *Bavaria* on reef Holims island, 14 miles from town.

1914.		
Feb.	23. SS. <i>Cobequid</i> stranded Trinity ledge..	\$ 25 00
"	25. Norwegian barque stranded Yarmouth harbour..	16 00
April.	8. Arbitration between ship and wharfage ..	10 00
"	13. Norwegian barque <i>Valdivia</i> et Weymouth..	17 00
"	28. Norwegian ship <i>Mabilla</i> , Yarmouth harbour..	24 00
"	28. Schooner M.S.M. hatches..	5 00
July	14. ——— Dunnage hatches..	5 00
"	22. Italian barque <i>King Malkam</i> , Short Beach..	36 00
Aug.	24. Schooner <i>Exildo</i> stranded Yarmouth harbour..	8 00
Sept.	22. Italian barque <i>Santa Maria</i> , hatches..	8 00
Dec.	12. SS. <i>Prince Arthur</i> -sea damage..	16 00
"	21. Schooner <i>Arthur Parks</i> -hatches ..	5 00
"	31. Total..	\$175 00

I am, sir, Your obedient servant,  
  
R. M. FERGUSON,  
Port Warden.

PORT WARDEN'S REPORT OF SYDNEY, N.S.

SYDNEY, N.S., January 9, 1915.

Deputy Minister of Marine,  
Ottawa.

SIR,—I herewith beg to hand you my report for the year ending December 31, 1914.

I have the honour to remain,  
  
Your obedient servant,  
  
NELSON H. TOWNSEND.



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1914.

April	27.	SS. Scottish Monarch..	\$8 00
"	28.	SS. Corunna ..	8 00
May	1.	Heathcote..	8 00
"	22.	Neanso..	8 00
"	22.	Corunna..	8 00
"	14.	Nevada..	8 00
"	14.	Nordkap..	8 00
"	30.	Newa ..	8 00
"	30.	Normannia..	8 00
June	1.	Wladimer Reitz..	8 00
"	8.	Nespero..	8 00
"	16.	Doonholme..	8 00
"	16.	Ajenoria ..	8 00
"	13.	Thorsa..	8 00
"	15.	Gladestry..	8 00
"	20.	Epson..	8 00
"	24.	Spiral..	8 00
"	24.	Mountsfield..	8 00
"	25.	Hardanger..	8 00
"	26.	Corunna..	8 00
"	27.	Nevada..	8 00
"	29.	Ness..	8 00
July	3.	Budapest..	8 00
"	10.	Nothmount..	8 00
"	11.	Erington Court ..	8 00
"	13.	Othello ..	8 00
"	14.	Glenmount..	8 00
"	15.	Thormount..	8 00
"	15.	Alden..	8 00
"	21.	Newlands ..	8 00
"	22.	Tabasco ..	8 00
"	28.	Nevada ..	8 00
"	29.	Yorkmoor..	8 00
"	29.	Kaduna..	8 00
"	29.	Knight of the Garter..	8 00
"	29.	Westmount ..	8 00
Aug.	4.	Corunna..	8 00
"	4.	Lowmoor..	8 00
"	24.	Nevada..	8 00
"	14.	Felix..	8 00
"	18.	American..	8 00
"	24.	Nevada..	8 00
"	25.	Uplands..	8 00
"	26.	Benjuela..	8 00
"	26.	Salmonpool..	8 00
"	28.	Cressington Court..	8 00
Sept.	4.	Hammersus..	8 00
"	5.	Othello..	8 00
"	7.	Mountby..	8 00
"	10.	Sixilby..	8 00
"	11.	Corunna..	8 00
"	15.	Santerano..	8 00
"	17.	Geo. Pyman..	8 00
"	18.	Heathcote..	8 00
"	21.	Rossano..	8 00
"	23.	Wilberforce..	8 00
"	24.	Nantneen..	8 00
Oct.	1.	Liverpool..	8 00
"	5.	American..	8 00
"	6.	Kia Ora..	8 00
"	7.	Corunna..	8 00
"	7.	Eustace..	8 00
"	10.	Anglo Brazilian..	8 00
"	12.	Felix..	8 00
"	12.	Farmand..	8 00
"	13.	Monkshaven..	8 00
"	17.	Nevada ..	8 00
"	22.	Corunna..	8 00
"	27.	Cape Breton..	8 00
"	27.	Daggry..	8 00
"	28.	Wirral..	8 00
Nov.	1.	Bendu ..	8 00
"	4.	Eskasoni ..	8 00
"	4.	Daltonhall..	8 00
"	9.	Sharon..	8 00



1914.		
Nov.	16. Gleneliffe.. . . . .	\$8 00
"	18. Rauma.. . . . .	8 00
"	Gleneliffe.. . . . .	8 00
"	18. Ada.. . . . .	8 00
"	18. Ruma.. . . . .	8 00
"	— Longscar.. . . . .	8 00
"	24. Rossano.. . . . .	8 00
Dec.	1. Tyr.. . . . .	8 00
"	1. Horsley.. . . . .	8 00
"	1. Skogland.. . . . .	8 00
"	2. Kendal Castle.. . . . .	8 00
"	4. Sheba.. . . . .	8 00
"	7. Clumberhall.. . . . .	8 00
"	7. Glendene.. . . . .	8 00
"	14. Morwenna.. . . . .	8 00
"	19. Durling Chine.. . . . .	8 00
"	31. Heathcote.. . . . .	8 00



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## APPENDIX No. 15.

## REPORTS OF SUBSIDIZED WRECKING COMPANIES.

SALVAGE SERVICES RENDERED BY THE QUEBEC SALVAGE AND WRECKING COMPANY FROM  
THE 31ST MARCH, 1914, TO 31ST MARCH, 1915.

1914.

April 29.—Towed off the ss. *Montfort* ashore at Beauport flat.

May 13.—Towed ss. *Saronic* from Grosse Isle to Quebec, owing to breakdown of machinery.

June 1.—Went to the assistance of the ss. *Storstad*, which steamer collided with the *Empress of Ireland*. Met her off cape Salmon and conveyed her to Montreal.

July 2.—Made temporary repairs to Canadian ss. *Canada* at Lévis. This steamer struck up the river at cap à la Roche.

July 23.—Saved the Canadian ss. *Canada*, which steamer was hard ashore off cape Chat.

August 8.—The ss. *Lord Strathcona* with superintendent and diver operated in connection with Mr. Wotherspoon recovering bodies from the wreck of the ss. *Empress of Ireland* for forty-six days.

August 17.—Went to the assistance of the Norwegian ss. *Folk*, ashore at Saguenay river, and towed her off.

August 23 to September 1.—Saved the British steamer *Monkshaven*, which steamer was ashore off Ste. Felicite, and brought her to Quebec.

September 3 to 16.—Went to the assistance of the British steamer *Floriston*, which steamer had been beached off Port Saunders, Newfoundland, after being in collision with an iceberg. On arrival at Port Saunders found the steamer had been towed off beach and was anchored at Port Saunders, badly leaking. Furnished the necessary pumps and compressor and by the help of the same brought her to Quebec conveyed by the *Lord Strathcona*.

September 15.—Diver examined the bottom of the steamer *Ivernia* at the port of Quebec. This steamer ran ashore off Father point, but came off without assistance.

November 23.—Went to the assistance of the ss. *Zeeland*, ashore off isle au Raisin on the upper part of lake St. Peter. By applying arrangement for compressed air through her bottom and the assistance of the dredges from the Public Works and Government steamers, also steamer from McNaughton, Montreal, and the *Lord Strathcona* also the ss. *Musquash*. This steamer was towed off under the direction of the superintendent, Captain H. Kjerland.

November 27.—Went to assist the steamer *Hendonhall*, which steamer ran ashore off point des Monts. Owing to serious position and the lateness of the season, could do nothing to save steamer.



6 GEORGE V, A. 1916

December 8, 1914, to May 3, 1915.—The *Lord Strathcona*, with the proper salvage equipment, superintendent, wreck foreman, diver and wreckers left Quebec for St. John, N.B., on December 8, 1914, and returned to Quebec on May 3, 1915, and during this interval the salvage plant had its station at St. John, N.B., for operation of the Atlantic coast and the bay of Fundy.

December 30, 1914, to January 3, 1915.—Went to the assistance of the ss. *Navarra*, stranded off Yarmouth, N.S. Condition of position did not permit salvage of steamer, but rendered the necessary assistance to secure steam for winch for saving of her cargo.

QUEBEC SALVAGE & WRECKING CO., LTD., of Montreal.

HAAKOU KJERLAND, *Superintendent*.

## REPORT OF BRITISH COLUMBIA SALVAGE COMPANY.

### SALVAGE SERVICES OF SS. "SALVOR."

March 31, 1914, to March 31, 1915.

August 19, 1914, to October 5, 1914.—To wreck of ss. *Prince Albert*, on The Knob Group, Browning Passage, British Columbia.

October 10, 1914, to October 11, 1914.—To wreck of ss. *Sious*, on Dungeness, Washington, U.S.A.

October 14, 1914, to October 15, 1914.—Towed ss. *Prince Albert* to Vancouver, B.C. Keeping her free of water until docked.

January 10, 1915, to January 14, 1915.—To wreck of C.G.S. *Galiano*, on Colburg Peninsula spit.

January 21, 1915, to February 10, 1915.—To wreck of ss. *Delhi*, on Straits island, Sumner straits, Alaska.

February 15, 1915, to February 24, 1915.—To wreck of ss. *Delhi* on Sumner straits, Alaska.

VICTORIA, B.C., April 23, 1915.



APPENDIX No. 16.

LIVE STOCK SHIPMENTS.

List of Live Stock shipped from May, 1914 to November, 1914, to ports in Great Britain and France.

MONTREAL.

Months.		Sheep	Horses.	Cattle.	Mules.	U. S. Cattle.
May,	1914.....	.....	1	.....	.....	.....
June,	1914.....	.....	.....	.....	.....	.....
July,	1914.....	.....	2	.....	.....	.....
August,	1914.....	.....	92	12	.....	.....
September,	1914.....	.....	.....	.....	.....	.....
October,	1914.....	145	93	13	.....	.....
November,	1914.....	.....	1,140	.....	.....	.....
		145	1,328	25	.....	.....

COMPARATIVE STATEMENT of the Number of Cattle shipped from Canada to British ports from the years 1904-5 to 1914-15. Shipments to France as well in 1914-15.

	Sheep.			Cattle.			Horses.			Totals.		
	Montreal.	St. John.	Halifax.	Montreal.	St. John.	Halifax.	Montreal.	St. John.	Halifax.	Sheep.	Cattle.	Horses.
1914-15....	145	Nil.	Nil.	25	Nil.	Nil.	1,328	Nil.	Nil.	145	25	1,328
1913-14....	296	"	"	512	"	"	134	"	"	296	512	134
1912-13....	178	"	"	6,469	"	"	175	"	"	178	6,469	175
1911-12....	3,725	1,798	"	45,866	2,001	"	138	14	"	5,523	47,967	152
1910-11....	248	2,508	"	72,555	3,301	"	497	19	"	2,756	75,856	516
1909-10....	1,616	Nil.	"	94,314	4,632	"	286	Nil.	"	1,616	98,946	286
1908-09....	10,111	151	"	99,830	22,923	3,097	116	65	"	10,262	125,850	181
1907-8....	11,585	4,169	"	96,977	20,210	Nil.	174	51	"	15,753	127,187	225
1906-7....	10,791	1,371	"	128,160	38,148	"	661	57	"	12,162	159,308	718
1905-6....	19,077	3,971	"	126,871	33,548	1,042	568	79	"	23,048	161,456	647
1904-5....	49,422	17,283	"	108,553	33,833	745	279	213	"	66,715	143,131	492



APPENDIX No. 17.

STATEMENT showing the result of returns of shipping and discharging of seamen, received by the Department of Marine and Fisheries, in accordance with the provisions of chapter 113, "An Act respecting Shipping in Canada," from Shipping Masters throughout the Dominion for each half-year ending June 30, 1914, and December 31, 1914.

NOTE: The Collector of Customs acts as Shipping Master where no other Shipping Master is appointed.

QUEBEC.

Name of Port.	Name of County.	Name of Shipping Master.	Half Year ending June, 1914.			Half Year ending Dec. 31, 1914.			Total.		
			Seamen Shipped.	Seamen Discharged.	Amount. \$ cts.	Seamen Shipped.	Seamen Discharged.	Amount. \$ cts.	Seamen Shipped.	Seamen Discharged.	Amount. \$ cts.
Chandler.	Gaspé.	Collector of Customs	.....	.....	.....	2	.....	80	2	.....	80
Escoumains	Saguenay	.....	1	1	60	.....	.....	.....	1	.....	60
Gaspé.	Gaspé	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Pabos	"	H. H. Dakin	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montreal	Hochelaga	R. S. White	513	350	336 40	2,057	785	1,245 00	2,370	1,135	1,581 40
Magdalen Islands.	Gaspé.	Camille Delaney	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paspébiac	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Perce.	"	Phil. LeBoutillier	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quebec.	Quebec.	T. Beland	319	93	252 40	351	351	312 30	670	444	564 70
Rimouski	Rimouski	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Johns	St. Johns	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Three Rivers	Three Rivers.	W. D. Fisher	.....	.....	.....	6	4	4 20	6	4	4 20

NEW BRUNSWICK.

Albert	Albert.	H. D. Croaker	.....	.....	.....	3	.....	1 50	3	.....	1 50
Alma	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Amherst.	Cumberland	.....	.....	.....	.....	.....	2	60	.....	2	60
Baie Verte	"	William Prescott.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bathurst	Gloucester	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bear River.	Digby.	W. W. Wade.	.....	.....	.....	30	32	24 60	30	32	24 60
Chatham.	Northumberland	R. J. Walls	13	13	10 40	42	32	30 60	55	45	41 00
Dalhousie	Restigouche	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dorchester.	Westmorland.	W. D. Wilbur	2	7	2 60	.....	.....	.....	2	7	2 60



[illegible]

## NOVA SCOTIA.

[illegible]



STATEMENT showing the result of returns of shipping and discharging of seamen, etc --Continued.

NOVA SCOTIA--Continued.

Name of Port.	Name of County.	Name of Shipping Master.	Half year ending June, 1914.			Half year ending Dec., 1914.			Total.		
			Seamen Shipped.	Seamen Discharged.	Amount.	Seamen Shipped.	Seamen Discharged.	Amount.	Seamen Shipped.	Seamen Discharged.	Amount.
					\$ cts.			\$ cts.			\$ cts.
Hastings	Iverness										
Hantsport	Hants					11	12	9 10	11	12	9 10
Harbour-au-Bouché	Annapolis										
Isaac Harbour	Guysborough	Hugh McMillan	20	10	13 00				20	10	13 00
Jordan Bay	Shelburne	E. Lyle Martin	33	73	56 40	103	110	92 50	136	183	148 90
*Lahave	Lunenburg	Wm. Maschke									
Larry River	Guysborough	M. J. Murphy									
Liscomb	Guysborough	Wm. Henlon	24	10	15 00	10	18	10 40	34	28	25 40
Liverpool	Queens	W. G. Hemeon	40	26	27 80	49	36	35 30	89	62	83 10
Lockeport	Shelburne	J. R. Ruggles	16	15	12 50				16	15	12 50
Londonerry	Colchester	J. A. Blaikie									
*Lunenburg	Lunenburg	Wm. Shupe	119	171	110 80	239	140	301 50	358	311	412 30
Louisburg	Cape Breton	Arthur Townsend	104	90	79 00	50	62	43 60	154	152	122 60
Lingan	Cape Breton	John Burke									
*Mahone Bay	Lunenburg	J. E. Mason	29	32	56 60	72	74	58 20	101	106	114 80
Main-a-Dion	Cape Breton										
Maitland	Hants	Rankin McDougall				13	12	10 10		12	10 10
Margaretville	Annapolis	Collector of Customs					4	1 20		4	1 20
Margaroe	Iverness										
Merigonish	Pictou										
Meteghen	Bigby	L. A. Melancon	3	2	2 10	11	6	7 30	14	8	9 40
Mulgrave	Guysborough										
New Campbellton	Victoria	Duncan Carey									
North East Harbour	Shelburne	G. B. Swaine									
North Sydney	Cape Breton	M. J. Ross	395	181	251 80	405	173	254 40	880	354	506 20
Parrsborough	Cumberland	E. Woodworth	58	37	40 10	105	92	80 10	163	129	120 20
Pictou	Pictou	C. B. Robinson	7	5	5 00	35	48	31 90	42	53	36 90
Port Greville	Cumberland	G. A. Pettis				42	45	39 00	42	45	39 00
Port Hawkesbury	Iverness	Jas. McLean	5	5	4 00		1	0 30	5	6	4 30
Port Hastings	"	Geo. L. McLean	3	4	2 70	16	25	15 50	19	29	18 20
Port Hood	"	Edw. McD. Tremain		2	0 60					2	0 60
Port Lorne	Annapolis										
Port Mulgrave	Guysborough	M. J. Keating	26	15	17 50	13	16	11 30	39	31	28 80











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## APPENDIX "D" OF THE METEOROLOGICAL REPORT.

This appendix was received after the Meteorological Report of Director R. F. Stupart was in print, and is therefore out of its proper place in the annual report.

Most of the information which this appendix contains was obtained from observations during the season of 1915, and being of an extremely interesting character it was thought well to publish it this year instead of deferring its publication until 1916.

It, furthermore, shows some of the steps taken to introduce agricultural meteorology into the meteorological service of Canada, the preparatory arrangements and the actual work done in this line of collecting data as the result of observations and investigations into the effect of climatic conditions, at different stations, upon the growing grain and other agricultural products in Canada in 1915. One of the objects that will be kept in view, in connection with this branch of meteorological service in Canada is to ascertain the most suitable kind of seed grain to sow in different farming localities.

It will be observed that while the meteorological service is controlled by the Marine Department, the co-operation of the officials at Experimental Farm stations has been accorded.

## APPENDIX "D" OF THE METEOROLOGICAL REPORT.

METEOROLOGICAL OFFICE,

TORONTO, October 20, 1915.

R. F. STUPART, Esq., F.R.S.C.,  
Director of the Meteorological Service,  
Toronto.

SIR,—I beg to furnish herewith a report on the Department of Agricultural Meteorology, of which you have placed me in charge.

It is estimated by one thoroughly acquainted with cereals in Canada, that in the province of Saskatchewan, under the best farming methods known to modern agriculturists, that the yield of spring wheat varies from 10 to 20 bushels per acre to 50 bushels per acre, according to the season—unfavourable or favourable. Here is a possible loss of at least 30 bushels per acre of wheat, chargeable to the weather alone. Surely the great unsolved problem indicated in these figures is a challenge to every effort on the part of scientific agricultural investigators.

The *Experiment Station Record*, published by the United States Department of Agriculture, said editorially in June, 1913:—

“An elaborate report, proposing an international organization of agricultural meteorology, presented at the General Assembly of the International Institute of Agriculture at Rome in the spring of 1911, was striking evidence of an awakening to the need of development in this neglected field of agricultural inquiry.

“Several of the established weather services of the world are now actively engaged in the study of ways and means of securing the additional meteorological information required by agriculture, and of making that already in hand more immediately available. In a few cases separate services for agricultural meteorology have been organized.



"There is evidence that those who give thought to this subject are more clearly convinced than ever before of the need of experimental investigation into the specific effects of known and controlled conditions of moisture, temperature, sunshine, etc., on plant growth and healthy development.

"Prof. Cleveland Abbe has advocated the more exact study of the relation of meteorological and climatological conditions to plant growth by means of 'climatological laboratories' in which the conditions are more or less completely controlled, thus supplementing and furnishing a check upon outdoor observations.

"The Russian Bureau of Agricultural Meteorology gives great prominence to problems of research and the direct correlation of meteorological factors and plant growth, without neglecting the popular and educational features of the work. It is probably the most completely organized attempt at exact and comprehensive investigation in this field now in existence.

"The service in Russia was organized in 1897. Its characteristic feature is a system of agricultural-meteorological stations scattered throughout the Empire, which, in addition to being equipped with the necessary meteorological instruments, are provided with experimental fields on which various crops are grown for the purpose of definitely studying the effect of the meteorological and climatological conditions on plant growth. This system of stations has accumulated a large amount of valuable data bearing upon the relation of meteorological factors to the soil and to the life and growth of cultivated plants, especially with reference to critical periods of the growth of various plants. Those experimented with have included, among others, corn, wheat, oats, rye, millet, and buckwheat. Similar studies have been extended to the effect of the meteorological factors on the life and activities of domestic animals.

"There is a present need for more systematic research on a plan similar to that of the Russian Bureau of Agricultural Meteorology, and embodying certain of the features proposed by Professor Abbe.

". . . It appears in brief that the fundamental needs as regards the application of meteorology to agriculture are, in logical sequence and in ascending order of importance, as follows: (1) The organization and correlation of statistical data on weather conditions and crop growth already available in large amount; (2) the organization, as proposed by Voorhees, of more extensive and systematic effort to secure exact data along this line by all interested agencies; and (3) special studies of the adjustment of plants and animals to their atmospheric environment, requiring the co-operation of the biologist with the meteorologist."

Mr. A. C. True, Director of the States Relations Service, of the United States Department of Agriculture, in a letter to the writer in October, 1914, said: "No meteorological work has been undertaken in the United States in accordance with the Russian plan. . . . On the whole, agricultural meteorology appears to have been strangely neglected as a clearly defined subject of investigation although it seems highly important that meteorological investigations bearing directly upon plant and animal growth and crop production should be given a prominent place in agricultural research and should be broadly planned and persistently followed."

In a paper entitled, "Relation of meteorological study to more logical systems of cropping and to crop production", J. F. Voorhees, Esq., Consulting Meteorologist at the Agricultural Experiment Station of Tennessee, U.S.A., writes, on page 101: "If the experiment stations will each investigate the growing habits of as many crops as possible and make the investigations uniform; if the Weather Bureau will put its data in the best shape for use in the solution of this problem; and if each of the other bureaus of the department whose activities touch on this problem in any way will



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co-operate heartily, it will be possible in five years to get together a mass of information that will make it possible to double and perhaps quadruple the efficiency of the farms of the south."

Dr. Raphael Zon, Chief of Forest Investigations, in the United States wrote me in June, 1914, stating: "I believe in both extensive and intensive investigations with relation to plant life. The extensive studies should be supplied by the regular weather service of the country, while intensive studies should be conducted at agricultural and forest experiment stations. The extensive observations, properly conducted and worked up, would be of enormous benefit for the proper understanding of plant distribution over a wide territory, while the intensive studies would answer some specific problems of the relation between definite climatic factors and plant growth."

Professor Broounoff, Chief of the Bureau of Meteorology for Russia, in a pamphlet in French, styled "Some considerations on the organization of a meteorological service in the interests of agriculture," wrote (translated) with regard to the practical results of the studies at the agricultural-meteorological stations: "Adaptation, be it only to the average weather—the actual weather being impossible to foresee—leads in many localities in Russia to an appreciable increase in yields. Another advantage of the knowledge of critical periods lies in the possibility of a judicious application of irrigation, which is extremely important in our arid regions, e.g. Turkestan and the southeast of Russia in Europe."

Dr. T. K. Doherty, Commissioner for Canada of the International Institute of Agriculture, wrote this department in June, 1914: "Doubtless the meteorological system of the Russian Government is pretty fully developed and the publication issued . . . would be, if translated into English, of great value."

In November, 1914, I received a letter from Dr. J. E. Church, of the Department of Meteorology, of the University of Nevada, U.S.A., congratulating Canada on taking the initiative in following the suggestions of the International Institute of Agriculture, with regard to agricultural meteorology. Through the International Institute, there was appointed a permanent commission to direct the international efforts in this work, and this commission was to have met in Paris in the summer of 1914, but has been, and likely will be, prevented from meeting, by the great European war, for an indefinite time to come.

G. P. Burns, Esq., Botanist of the University of Vermont, U.S.A., wrote to me in February, 1915: "I am much interested to know that Canada has established a branch of the service to study agricultural meteorology. This is an important, but little known field, and one which offers many obstacles."

Prof. J. W. Crow, of the Department of Horticulture, Ontario Agricultural College, wrote in July, 1914: "I am most interested in your line of work." And R. M. Winslow, Provincial Horticulturist for British Columbia, wrote me in January, 1915: "I quite agree that there is a great field of opportunity in the study of such problems, but they need to be taken up thoroughly and scientifically to bring accurate results."

J. Bracken, Esq., Professor of Field Husbandry at the University of Saskatchewan, wrote me in May, 1914: "We shall be very glad to co-operate with you in securing data or in carrying out field experiments, if we can be of any service to you in that way."

It seemed to the writer that field work in agricultural meteorology ought to be inaugurated in Canada, and when Dr. F. T. Shutt, Assistant Director of the Dominion Experimental Farms System, was approached with a plan of co-operative work, in January, 1915, he replied: "At a general meeting of the chief officers and the superintendents of the branch farms and stations . . . I presented in outline the proposed plan for obtaining data for the closer study of the influence of 'weather' on crops. You will be pleased to learn that they expressed themselves as impressed with the value that such investigations would in the long run be to the farmer and, further, that they would be willing, in so far as they were able, to co-operate in the work."



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At the request of Dr. Shutt, I prepared in February, 1915, an outline of the new movement in agricultural meteorology, which was incorporated in a publication from the Central Experimental Farm, Ottawa.

Some of the Russian forms used in field studies of spring grains were translated for me by Dr. Zon, and I have now on file a fairly complete set of Russian publications, which await translation. With the assistance of Dr. Shutt and of Dr. Chas. E. Saunders, Dominion Cerealists, I adapted the translated form to conditions possible this year in Canada, involving no additional outlay of money, and not an excessive demand on the time of the observers at the Experimental Stations. Each of fourteen stations, well distributed over Canada, grew during this season of 1915 a plot of Marquis spring wheat, and notes on the development of the crop were recorded on the forms supplied by this department.

I am at present engaged in correlating the crop data, by a graphical method, with the daily temperatures, precipitation, and bright sunshine occurring throughout the growing season of the wheat.

I visited each station during the growing season and obtained a first-hand acquaintance with the plots and field conditions; took careful notes, copies of which were supplied to Dr. Shutt; encouraged uniform methods of taking meteorological observations; investigated climatic conditions through observation and conversation with experienced men; studied the suitability of most of our important crops to the climate of each Dominion Experimental Station; collected a lot of information which will assist in an intelligent study of the crop and weather data.

Prof. J. Warren Smith, of Ohio, who has done valuable work along the line of correlating crop statistics with weather data at present available in the United States, wrote me in October, 1915: "You have made a start in the right direction, and I will add that it is a splendid one."

The plans of my department include a study of the data accumulated this season, arrangements for the early translation of all Russian publications of value to investigators in agricultural meteorology, and after these precedents have been thoroughly studied, the perfecting of field methods and equipment, so that a serious attack may be made on this great problem.

As was pointed out at the beginning of this report the problem challenges scientific investigators all over the world. In a spirit of lethargy they may say: "The weather cannot be changed. What can we do about all this?" Or in the indomitable spirit of modern science they may say: "Here is a great unsolved problem. We will never relinquish our energies until a solution is found."

It is in this spirit that Russia has attacked the question, and results indicate that her efforts have been worth while.

Respectfully submitted,

R. W. MILLS,

*In charge of Dept. of Agricultural Meteorology.*